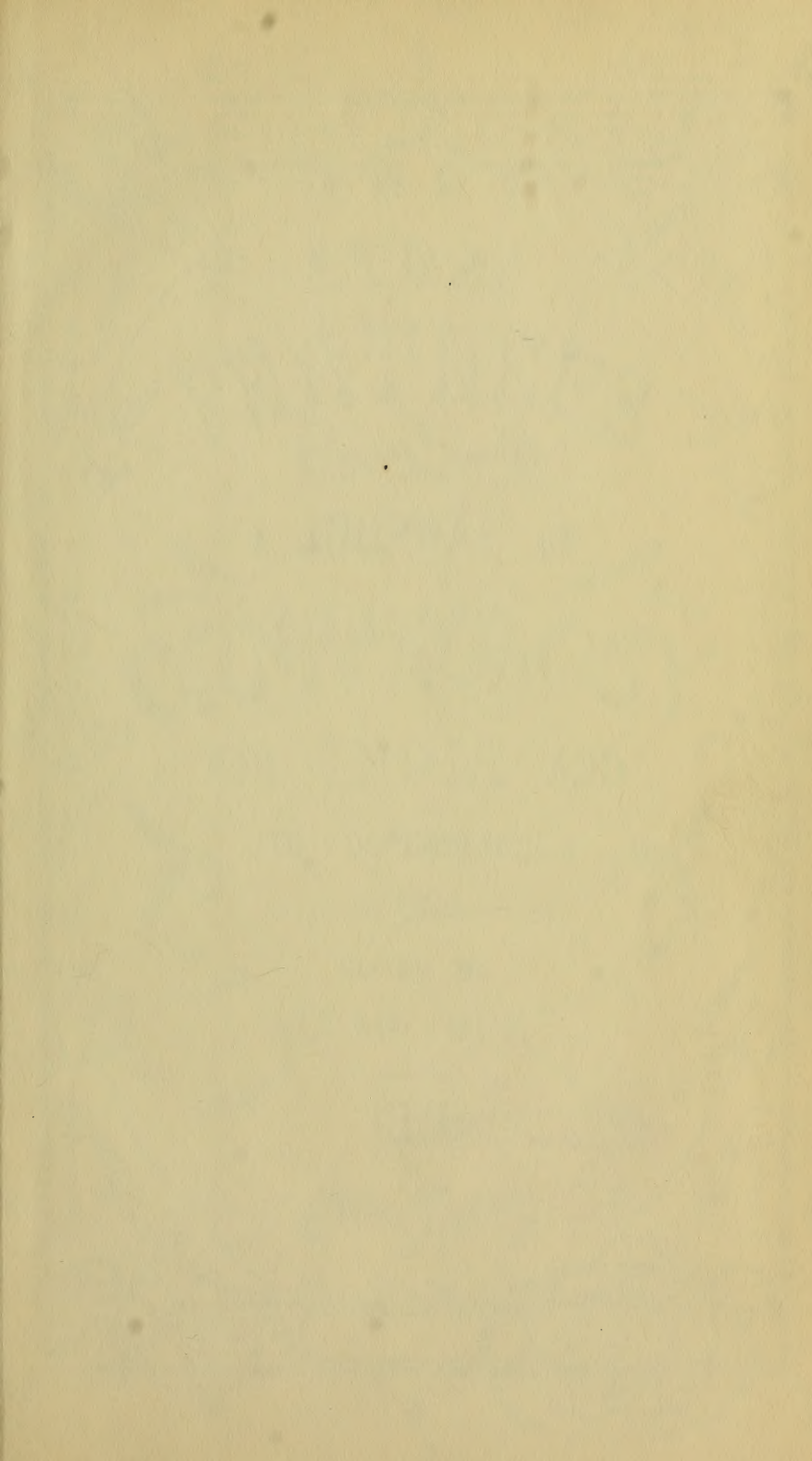


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Division of Birds



STRAY
FEATHERS
A JOURNAL OF
ORNITHOLOGY
FOR INDIA AND
ITS DEPENDENCIES

EDITED BY
ALLAN HUME

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STRAY

FEATHERS,

A

Journal of Ornithology

FOR

INDIA AND ITS DEPENDENCIES.

EDITED BY

ALLAN HUME.

NOVEMBER, 1872.

In the uncertainty that existed as to whether arrangements could be matured for the publication of this little JOURNAL in India, I did not venture to solicit communications from any of the numerous collectors for and contributors to my Museum, though many of these are far better qualified to amuse and interest the Ornithological public than myself. Now that the work has been fairly started, I hope that all brother Ornithologists in India will aid me to make the work somewhat worthy of the Science of which we are common votaries. Single-handed, and with almost my whole time devoted to the performance of public duties, it is certain that even were I far better qualified for the task than I can pretend to be, no satisfactory results could be hoped for,—it is on the co-operation of Indian *Ornithologists* generally, that success must be dependant, and that co-operation I now most earnestly solicit.

THE EDITOR.

1st November, 1872.

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PREFACE.

ON the completion of this first bundle of STRAY FEATHERS, in other words of Vol. I., the Editor feels bound to acknowledge most gratefully, the cordial support that, during the past year, he has met with from Indian Ornithologists.

When Buffon wrote his Natural History of Birds, he congratulated himself on a knowledge of nearly 900 species, and estimated that the world *might* contain 1,500 species altogether, a number, so vast, that it seemed impossible to him, that they should ever be properly dealt with in one work.

The Avifauna of India and its Dependencies, already includes nearly 1,600 species, and it has always appeared to me impossible that so vast a fauna should be adequately dealt with, until it possessed a special local organ of its own, in which the observations and discoveries of professed ornithologists, working on the spot amongst the living birds, could be *promptly* and conveniently recorded, in which only matters bearing on our great work out *here* should find a place, and which by being, so to say, always at hand, and humble in its scope, should tempt the innumerable "bird-fanciers," who will not call themselves, (though they often truly are) ornithologists, because their acquaintance with scientific nomenclature is small, to put on record some of the multitudinous facts in regard to the distribution and habits of birds that, as travellers and sportsmen, are daily brought to their notice.

It was to supply such a special local organ, that our little Magazine was called into existence, and, so far as professed ornithologists are concerned, it has succeeded beyond the expectations and deserts of its Editor.

But, where the "bird-fanciers" are concerned, it has been, in great measure, a failure. There are hundreds of sportsmen in India, who could tell us facts about the nidification, habits, migrations, distribution, &c., of species of which we know little, and what I would urge upon all my kind coadjutors is, each in his own circle of friends, to endeavour to stir observant Sportsmen up, to add, each, their quota of knowledge to the general stock.

If would-be contributors have doubts as to the names of birds, in regard to which they have observations to record, let them send me skins (the veriest rags, will in most cases suffice) and I will with pleasure identify and return them.

Specially, in the matter of nidification and eggs are we in want of additional information; what is already on record on this subject, so far as I am acquainted with it, and what I have been

able to ascertain personally or from others, is set forth in my Rough Draft of "Eggs and Nests" of Indian Birds, Part I., of which has just been printed, and the two remaining parts of which will be available during the course of this present year. I venture to hope, that a perusal of this will show many "bird fanciers" and sportsmen, as well as ornithologists, that much information possessed by them is as yet not generally known, and that they will make it so through the pages of STRAY FEATHERS.

As to distribution again much remains to be worked out, and the importance of careful local faunas, in a vast region like that with which we deal, and in which, as it were, the Palæarctic and Palæotropic faunas meet, cannot be overrated.

No special scientific knowledge is necessary for the preparation of these—a man has only to collect *steadily*, in almost *any* locality for a year or eighteen months, one or two specimens of *every* species he can come across in his neighbourhood, to note, so far as practicable, in regard to each, whether they are rare or common, whether they are permanent residents or seasonal visitors, and if the latter, when they arrive and when they leave; whether they breed in his neighbourhood, and if so, when; what their nests are like, where they are situated, how they are composed, how many eggs they lay, and what these are like, and what their dimensions are; what the nestlings and what the young birds are like; what localities and what food the birds affect, and, even if he does all this very, *very* imperfectly in regard to a vast number of species, he will still (after his birds have been identified) possess materials for a most *useful* and *instructive* local avifauna, such as the most critical professed ornithologist will welcome cordially.

May I not hope that some of my supporters will turn their especial attention to local avifaunas such as that contributed by Mr. R. M. Adam to this present volume?

In conclusion, I must crave indulgence, especially from European readers, who have no conception of the difficulties attending the printing of works of this nature in India, for the many typographical errors that have—anything *but* adorned—our pages. In this as in other matters we shall try to improve, and in the mean time, I would pray all, both Indian and European, readers to be

"To our sad faults a little blind,
To our small merits, very kind!"

A. O. HUME.

CALCUTTA, }
December 1st, 1873. }

STRAY FEATHERS.

Vol. I.]

NOVEMBER, 1872.

[No. 1.

Nobelties.

IN placing on record, now and hereafter, supposed new species, it must be clearly understood that I do not dogmatically assert that they are all positively new.

They are not to be found in Jerdon, nor are they amongst the 400 odd species omitted by him, but ascertained now to occur within our limits.

Nor have I been able to identify them with any known species of which I have plates or descriptions.

With only my own private library and museum however to consult, I am naturally peculiarly liable to error, and shall be grateful to all who will correct my inevitable mistakes.

The birds having occurred within our limits, it is of great importance to make sure whether they are new or not, and if not, to ascertain what name they should rightly bear; and no more ready means of attaining this object suggests itself to me than that of publishing descriptions such as follow:

Ptionoprogne Pallida, Sp. Nov.

Similar to P. Rupestris Scop., but much paler and very considerably smaller. Wing, 4.4 to 4.75 inches..

I FOUND this new species very common along the course of the Gaj, the Nurrinai, and other small streams that issue from the bare stony hills that divide Sindh from Kelat. I found it again along with *Cypselus Apus*, or *C. Barbatus*, Tristram and Temminck, if this species, which I doubt, be really distinct, off the rocky headland of Minora, at the mouth of the Kurra-chee Harbour, and in similar localities along the Mekran Coast. The flight is rapid, and the birds are somewhat difficult, as some of our party found, to bring to bag. I think I heard of a whole flock of shot being fired away without any tangible results.

The sexes do not differ materially in size, though individuals differ in each sex considerably. The males, (seven of each sex were preserved), varied in length from 5·35 to 5·6 inches; expanse, 12·25 to 13 inches; wing, 4·4 to 4·7 inches. In the females, the length varied from 5·25 to 5·5 inches; expanse, 12·3 inches; wing 4·5 to 4·75 inches. In both sexes the tail measures about 1·8 inch from vent. The wings, when closed, exceed the tail by a little more than 0·5 inch, and the weight was a trifle over 0·5 oz.

Description.—Bill black; legs and feet horny brown. The whole upper surface, a very pale greyish earthy brown, very much paler than the same parts in either *P. Rupestris*, or *Cotyle Sinensis*: the quills only slightly darker, yet sufficiently so to contrast pretty markedly with the scapulars, back, rump, and upper tail coverts: the lateral tail feathers, all but the external feather on each side, with a large oval white spot on the inner web, as in *Rupestris*, and with dark shafts, and a darker tint on the web near the shaft as in that latter species. Lower surface as in *Rupestris*, but much paler; the whole of the chin, throat, breast, and abdomen being white with only a faint fulvous or rufous tinge, and the wing lining and lower tail coverts, which in *Rupestris* are a decided dark brown, are in this species the same pale earthy grey brown as the upper surface.

No specimen of the true *Rupestris* that I have seen has the wing less than 5 inches and some have it full 5·5 inches. Jerdon indeed gives it at 5·75 inches; but this, I think, is greatly above average. The true *Rupestris*, of which I saw no specimen in Sindh, occurs a little further east in Kutch, whence I have a specimen with the wing 5·2 inches, exactly similar to other specimens from Simla, and Khandala, and to European birds.

Saxicola Alboniger, *Sp. Nov.*

Very similar to S. Picata, (Blyth,) but larger; the black not extending on to the breast as in this latter, and with the white extending further up the back. Sexes alike, but male considerably larger. Male's length, 7·5 inches; wing, 4·25 inches; bill at front, 0·65 inch.

ANOTHER species new to our Indian Avifauna is *Saxicola Monacha*, Rüpp.—(*Gracilis*: Licht. Pl. Col. 359)—which is not uncommon in, and immediately at the foot of, the stony hills which divide Kelat from Sindh and in the similar hills that run along the Mekran Coast. In the plains of Sindh this species

never occurs ; it is there, curiously enough, replaced by a much smaller, but in many respects similar, species, *Saxicola Capistrata*. Now the remarkable thing is, that in the plains where *Capistrata* occurs, there also occurs *Picata* : but in the localities where *Monacha* occurs, there we find another bird very similar in plumage to *Picata*, but much larger in every way. I am, I confess, unable to prove it, but, as I have long since stated, I am strongly inclined to believe *S. Capistrata* and *S. Picata* to be different stages of the same species. At any rate I can shew an apparently almost perfect series between the two. I am also (so similar are they in size, length, and bill, &c.) inclined to believe that possibly the apparently new *Saxicola* which I am about to characterize, may be a different stage of *S. Monacha*. From *Picata*, which it closely resembles, it is distinguished at once by its much larger size, longer bill, and the greater extent of white upon the back, as well as its much stronger and larger legs and feet. This species may be *Leucopygia*, (Brehm.) from Palestine, of which I can find no description ; but for the present I must give it some name, and I therefore provisionally christen it *S. Alboniger*. The sexes are perfectly similar as to plumage, but differ as to size, the males being considerably larger.

Dimensions.—Male ; length, 7·75 inches ; tail, 2·8 to 3 inches ; wing, 4·1 to 4·25 inches ; bill at front, 0·65 inch ; tarsus, 1·1 inch.

Female ; length, 6·5 to 6·75 inches ; wing, 3·8 to 4 inches ; tail, 2·75 to 2·9 inches ; bill at front, 0·56 to nearly 0·6 inch.

The plumage is very similar to *Picata*, but the black is, I think, even brighter and more intense. The tail agrees with *Picata* and not with *Monacha* in having the tips of all the lateral tail feathers black. The black, however, in *Alboniger* only covers the chin and throat, whereas in *Picata* it descends somewhat on the breast. The sides of the breast are black in both species. On the back again the black does not extend as far down as *Picata*. In the latter species, measuring from the tips of the longest tail coverts to where the black of the back commences, we have about 1·6 inch of white, while in *Alboniger* there are 2 inches of white, measuring in both cases fine males. In the female *Alboniger*, the length of the white on the back is about 1·8 inch. Whether actually new or not, this species is certainly new to our Indian Avifauna.

For comparison I subjoin measurements of *S. Picata*, (taken from eight males and ten females measured in the flesh) of which the sexes do *not* differ in size so materially. Length, 6·25 to 6·81 inches ; tail, 2·25 to 2·75 inches ; wing, 3·4 to 3·75 inches ; bill at front, 0·45 to 0·55 inch, (one exceptional specimen almost 0·6 inch ;) tarsus, 0·9 to 1 inch.

It will be seen that the largest male *Picata* is not quite as large as the female *Alboniger*. The difference, though not perhaps very striking when reduced to figures, is very conspicuous when a dozen specimens of each species are laid side by side and even more so in the living birds; in fact it was a gentleman in no degree interested in ornithology, who first told me that I should find the black and white chats in the hills larger and brighter colored than those we were at the time shooting in the low country.

Pellorneum Palustre, Sp. Nov.

Whole upper surface, uniform deep olive brown. Lower surface, white, faintly tinged, in places buffy, and spotted with dark brown. Bill at front, 0.5 inch, much shorter than that of Ruficeps, and much slenderer than that of Mandelli.

I HAVE named this species *Palustre** at Dr. Jerdon's suggestion who gave me the type specimen, which he procured on the Khasia Hills. It somewhat approaches *P. Tickelli*, Blyth, but is larger and differs entirely in the coloration of the lower parts. The bill is much slenderer and smaller than in *P. Ruficeps* and, *à fortiori*, very much slenderer than in *P. Mandelli*, Blandford, the bill of which is intermediate between that of *P. Ruficeps* and *Timalia Pileata*.

The following are dimensions taken from the dry skin. Length, 6.5 inches; wing, 2.65 inches; tail, 2.9 inches; bill at front, 0.57 inch; tarsus, 1.15 inches.

Description.—Upper mandible, deep brown. Lower mandible, pale brown. Legs and feet, apparently fleshy brown. Whole upper parts, uniform deep olive brown, except the longer upper tail coverts and tail feathers which are slightly tinged with rufous. Lower tail coverts, pale ferruginous; extreme point of forehead just above nostrils, tinged rufescent. Lores, chin, throat, sides of neck, breast, abdomen, and vent white, each feather with a pale brown central stripe, almost wanting on the lower abdomen. The ear coverts and some of the feathers of the breast, tinged with pale rufous buff. The whole wing lining and a narrow margin to the interior webs of the quills on the lower surface, very pale rufous buff.

* Since this was in type, I have learnt that Mr. Gould has figured and described this species under this same name. The type is, however, in my museum.

Dr. Jerdon observed this species common about marshy ground, and hence the name he suggested which I have adopted. I have had this specimen four years, but never described it, expecting Dr. Jerdon to do so, but as he has never done so, and has now, alas! left us for ever, I have thought it right to take an early opportunity of putting on record this one of his many discoveries.

Puffinus Persicus, Sp. Nov.

Intermediate in size and other characteristics between P. Anglorum, P. Obscura, and P. Nugax; a white line round the eye prolonged backwards from posterior angle, for from a quarter to half an inch. Length, 13 inches. Whole of lateral lower tail coverts, deep brown.

A SHEARWATER that I at first referred, though with great hesitation, to *Puffinus Anglorum*, is not uncommon about the mouths of the Indus and the Kurrachee Coast, and was observed also on several occasions in proceeding up the Gulf of Oman. It is a bird belonging to that particular sub-division which includes *P. Anglorum*, Ray, *P. Yelkuan*, Acerbi, *P. Obscura*, Gmelin and *P. Nugax*, Solander, but it will not in many respects agree with any of these species. I only succeeded in procuring a single specimen, a female, apparently adult, fresh moulted, except the three first primaries in each wing, which were still more or less in parchment. Macgillivray gives the length of *P. Anglorum* at 15 inches; Yarrell, at 14 inches; Degland and Gerbe, at 13·8 inches; and this bird was 13 inches in length. *P. Obscura* Yarrell, gives at 11 inches as the result of the measurement of six specimens. The wing, imperfectly developed in my specimen, measured 7 inches; when fully developed, it might measure 8 inches or 8·25 inches. The wing of *P. Anglorum* is given by several authorities at 9·5 inches and of *P. Obscura*, at 6·75 inches. It is too small for the one and too large for the other; moreover, it has the whole of *both* webs, of both the lateral and the longer tail coverts, deep brown, in this respect agreeing with *P. Obscura* and also *P. Yelkuan*; but the wing in *P. Yelkuan* is given by Schlegel at from 9·2 to 9·7 inches, which our wing could never have been, and the tarsus at about 1·9 inches, whereas in our bird the tarsus is exactly 1·5 inches. The mid toe is also given at 1·72 inches, in our bird it is about 1·45 inches; moreover, *Yelkuan* is described as being of a paler and greyer tint than *Anglorum*, whereas our bird is nearly black. Again, the white of the throat extends right up to the eye, and covers half

the lores, the other half of the lores, and the lower portion of the ear-coverts being speckled with white, in this respect corresponding with *P. Nugax*, but then Gould gives the length of *P. Nugax* at 11 inches, and the wing at 6.5 inches. Schlegel gives the wing at 6.6 to 7.7 inches, but these dimensions are too small for our bird, as are also those of the tarsus 1.25 inches, as given by Gould. Moreover, there is no white in the lower surface of the primaries, on the interior web, (the characteristic feature of *Nugax*), and as already explained, all the lateral and longer tail coverts are deep brown, whereas in *Nugax* they are entirely white. The coloration of the feet also is peculiar, more closely resembling that of *P. Anglorum* than of any other species of which I can find a description. Under these circumstances, either all the descriptions and measurements to which I have access are very faulty, or this is a new species; and as I am informed that it is observed all the way up the Persian Gulf as well as in the Gulf of Oman, (I myself only observed it as far as Gwador, on the Mekran, and Muscat, on the Arabian Coast,) I propose to characterize it as *Puffinus Persicus*. The following are the exact dimensions taken in the flesh :

Female killed 21st February 1872. Length, 13 inches; expanse, 26 inches (would probably have been 28 to 29 inches had the first three primaries been fully developed;) wing, 7 inches (would probably have been 8 to 8.25 inches;) tarsus, 1.5 inches; bill straight from forehead to tip, 1.3 inches; from anterior margin of nostril, 1.06 inch.

Description.—Bill dusky brown, bluish at base, and basal three-fourths of lower mandible; irides, brown. Legs and feet white, tinged with pink and lavender, with claws, margin of web, exterior of foot, and outer toe, and part of ridge of mid toe, black.

Plumage.—The head and nape deep sooty brown, the whole of the rest of the upper parts, blackish brown; almost if not quite black on the primaries, rump, upper tail coverts, and tail. Upper portion of the lores, mingled dusky brown, and whitish. Lower portion of the lores, and the whole of the chin and throat as far as the eyes on either side, breast, abdomen, vent, and shorter central lower tail coverts, pure white. A white line about 0.06 wide encircles the eye and extends backwards from the posterior angle as a narrow white streak for a distance of 0.35 to 0.4 inch: below this the ear-coverts are dusky brown, slightly mingled with whitish, the white line below the eye is only separated from the white of the throat by a hair line of greyish brown. The sides of the neck and the breast where the brown of the upper meets the white of the lower parts, is some-

what paler brown, slightly intermingled with white. The sides, axillaries, flanks, and the lesser under-wing coverts next the body, and the whole of the exterior and longer tail coverts are deep brown; the rest of the lower wing coverts except just at the edge of the wing are white, here and there slightly mottled, especially at the edge of the wing, with dusky brown; the longer axillaries are mottled with white along their bases.

Pomatorhinus Obscurus, Sp. Nov.

Very like P. Horsfieldi, (Sykes,) but larger; bill longer, deeper, and more compressed, and general color (where not white) dull, smoky earth-brown.

THIS new species is closely allied to *Horsfieldi*, of which I have numerous specimens of both sexes, but differs not only in coloration but in the greater length, depth, and compression of bill: it is also somewhat larger. This species has been procured at Mount Aboo and also in the Seoni District. The dimensions of a female measured in the flesh were as follows: Length, 10.12 inches; expanse, 11.5 inches; tail, from vent, 4 inches; wing, 4.15 inches. Wings when closed reached to within 2.75 inches of end of tail; tarsi, 1.3 inch; bill straight from forehead to point, 1.35 inches.

Description.—Bill dirty yellow, blackish on the ridge at base of upper mandible. Legs and feet, dark, slightly greenish plumbeous; irides, dark-red; chin, throat, breast, and centre of abdomen, and a long superciliary stripe from forehead to nape, pure white. The whole of the rest of the plumage a dull smoky earth-brown, rather a purer brown on quills and tail which are very faintly rufescent, recalling the wings and tail of *Malucocercus Canorus*. The tail obsoletely barred; the lores, dark brown; the ear-coverts slightly darker brown than the rest of the body.

But for the superior size both of bill and wing, the greater depth and the more compressed character of the bill, I should have thought that these were immature specimens of *Horsfieldi*; but as both in size of bill and wing they exceed every one of eight fully mature specimens of *Horsfieldi*, of both sexes, from the Pulneys, Coonoor, and Ootacamund, I am compelled, at any rate provisionally, to accept them as a distinct species.

Ephialtes Brucei, the Striated Scops Owl, *Sp. Nov.*

Tarsus, slender as in *Pennatus*. *Head and aigrettes*, small. *Wing*, 6.45 inches; *general color*, uniform pale earthy brown; *each feather with a conspicuous, central, very narrow, dark-brown shaft stripe*.

THIS fine new species I owe to the kindness of the Revd. H. Bruce, and as I have been compelled to disallow the supposed *Alcippe Brucei* which is nothing but *A. Poiocephala*, I think I cannot do better than dedicate to this gentleman what I believe to be an unquestionably new species procured by himself.

E. Brucei differs entirely in appearance from any of the other Indian species. The general color of the whole of the upper surface is a pale earthy brown, and each of the feathers of the forehead and top of the head, back and sides of the neck, back, rump, scapulars, and wing coverts, breast, abdomen, flanks, tibial and tarsal plumes, and lower tail coverts has a conspicuous central, very narrow dark brown shaft stripe. There are no white spots on any of the feathers; the tarsi are slender as in the *Pennatus* group. The head and aigrettes are very small, while the wing is as long as that of the largest *Griseus* that I have examined. Moreover, it is distinguished from all other Indian *Ephialtes* by having, like *Pennatus*, the 3rd quill equal to the 4th. This species, of which only a single specimen has yet been procured and that one near Rahuri, Ahmednuggur, is even to the most casual observer very distinct from any of the other six Indian species noted in my catalogue (see also Rough Notes, Part I, No. 2, page 386 *et seq.*) In some respects it approaches nearest to *Pennatus*, but the head is proportionally much smaller; the tone of colouring and the character of the markings are totally unlike those of any stage of that species; and the length of the bird in the flesh was 9 inches, while the wing measured 6.45 inches.

Nothing has yet been ascertained as to its habits, nidification, or distribution.

Dimensions.—Male; length, 9 inches; expanse, 22 inches; wing, 6.4 inches; tail, 3.25 inches; tarsus, 1.45 inches; foot greatest length, 1.87 inches; greatest width, 1.75 inches; mid toe to root of claw, 0.8 inch; its claw straight, 0.39 inch; hind toe, 0.35 inch; its claw straight, 0.28 inch; inner toe, 0.67 inch; its claw straight, 0.4 inch. Bill straight from forehead to point including cere, which is ill-defined, 0.7 inch; from gape, 0.73 inch; height at front, at margin of cere, 0.29 inch; wings when closed are even with the end of tail. Lower tail coverts reach to

within 0·9 inch of end of tail. The third and fourth primaries are the longest; the first is 0·75 inch, and the second is 0·08 shorter. The exterior tail feathers are 0·3 inch shorter than the central ones. Weight, 4 oz.

Description.—The legs and feet, including the base of the toes, densely feathered; terminal portions of toes with small transverse scutæ, slate colored; claws black, well curved, slender, and very sharp; toes very slender, but pads largely developed, so as to make a broad sole; exterior toe more or less versatile; irides bright yellow; bill dusky.

Plumage.—Cheeks and feathers under the eye, greyish white, excessively finely and indistinctly barred with brown. The lores and a stripe running up from them to the top of the eye, creamy white. The longer ones that meet over the base of the upper mandible, tinged brownish; a few tiny dark brown feathers on the eyelids. Chin and throat, creamy white, with very narrow central shaft stripes towards the tips and excessively finely vermicillated with brown. Feathers of the ruff which is inconspicuous, very pale buff, narrowly edged with dark brown. The whole of the forehead, crown, back of head, back and sides of neck, back scapulars, wing coverts, rump, and upper tail coverts, very pale buff or creamy white, so minutely and closely powdered with pale brown, that looked at from a little distance, the feathers appear to be a uniform pale earthy brown. Every feather has a narrow central dark-brown stripe; some of the outer scapulars have inconspicuous patches of buff on their outer webs, and the ground color of the feather on each side of the crown immediately above the eye is slightly paler; but beyond this the whole of the upper plumage above described is singularly uniform in tint and appearance, and is absolutely devoid of those white spots and blackish brown or buff dashes and streaks so characteristic of the other Indian species. The primaries are pale dingy buff, with broad transverse brown bars, which toward the tips are with the ground color mottled and freckled over, the ground color with brown, and the bars with dingy fulvous. Nearer the base of the feather, the light bars are on the exterior webs pure pale buff, while the dark bars continue freckled as already described. On the inner webs, the dark bars are nearly uniform and unmottled, while the light bars are pure and unmottled towards the edge of the webs, and suffused with brown towards the shafts. The tertiaries and the tips of the secondaries approximate closely to the plumage of the back and coverts. Of the breast and abdomen, the ground color is similar to that of the upper parts, but the brown powdering is coarser, so that more of the ground color is seen, and the dark brown central shaft stripes are somewhat broad-

er; towards the vent, on the flanks and lower tail coverts, the ground color becomes almost pure white and the brown powdering very sparse, while the shaft stripes are reduced as on the back and wing coverts to well marked dark lines. The short dense tibial and tarsal plumes are brownish white, each little feather with its dark central shaft stripes. The axillaries and wing lining are cream-colored, or yellowish white, entirely unstreaked and unmottled.

Drymoipus Insignis, Sp. Nov.

Upper surface, moderately dark earthy brown. Whole under-surface of tail, white. Length, 6.65 inches. Wing, 2.5 inches.

THIS species is very similar in many respects to *D. Rufescens nobis*, (*Ibis*, 1872, page 100,) and also to what I fancy *D. Sylvaticus* (which I have never seen) must be; but the adults are distinguishable from all the other *Drymoipi*, with which I am acquainted, by the whole under-surface of the tail appearing white; the fact is that the tip and the whole inner web for about an inch to an inch and-a-half from this tip is white, both above and below, and though the outer webs of the lateral feathers are pale brown, on the lower surface these webs are albescent. There is no trace of any dark bar.

Dimensions.—Only three birds (out of 13 specimens) and these, unfortunately, all males, were measured in the flesh. These vary as follows: Length, 6 to 6.4 inches; expanse, 7 inches; tail from vent, 2 to 2.75 inches; bill, 0.5 to 0.55 inch; wing, 2.45 to 2.55 inch; tarsus, 0.95 to 1 inch.

Description.—Bill black, in some whitish on the gonys, (close to the arch.) The legs fleshy brown, browner on feet, and browner still on claws. Irides, brownish buff or yellow. A streak from the nostril over the eye, but almost obsolete above the eye, yellowish white. Whole upper surface, brown, neither very dark nor light, more earthy on the head and back, purer on the quills and tail, and greyer on the ear-coverts, sides of the neck, and tips of some of the lesser wing coverts: the central tail feathers are brown, of the same tint as the quills, but slightly paler, distinctly but obsoletely barred, and no white tips; the lateral tail feathers have the outer webs brown, paling rapidly as the feathers approach the exterior of the tail, and quite albescent on the two external feathers; the tips are white and the terminal inch to an inch and-a-half of the inner webs is white also;

the quills are margined on the exterior web with rufous or rufous grey. The whole lower surface including the wing lining, is a very pale yellowish buff, much paler than in *Longicaudatus*, more uniform than in *Inornatus vera*, and purer than in *Rufescens*; the inner margins of the quills are the palest possible salmon color. The tibial plumes are pale fulvous.

I long confounded this species with *D. Sylvatica*. The dimensions and part of the description would agree well enough, but no one could possibly call the bird olive brown, nor is it possible to believe that when Jerdon speaks of a bird with a narrow sub-terminal dark band to the tail, the feather tipped with white, he refers to a bird in which there is no such dark band, and of which the major portion of the lateral tail feathers are pure white. I have this species only from Saugor, Mount Aboo, and Raipoor. The young of this species and of *Rufescens nobis* are so similar, that I was at one time inclined to believe that the two were only different phases of the same species; but the adults appear perfectly distinct and even the young are separable, by the somewhat larger size of the bill in this species and the color of the lower mandible which in the young *Rufescens* is horny white, in the young of this species almost entirely black.

Ninox Obscurus, Sp. Nov.

Of a nearly uniform, darkish, somewhat rufous, slightly chocolate brown. Abdomen, with a few imperfect yellowish white transverse bars. Wing, about 8·5 inches.

THIS species which appears, although quite distinct, to approach in general tint more nearly to the Bornean bird than any other *Ninox* yet described, has been found in the Nicobars near Camorta. I have as yet only seen a single specimen. Its crepuscular habits appear to be similar to those of its congeners. Nothing is known of its nidification.

Dimensions.—(From the dry skin.) Length, 12 inches; wing 8·5 inches; tail, about 5 inches; tarsus, 0·9 inch; bill from gape, 1·65 inches (sex not recorded.)

Description.—Lores and forehead, yellowish white. The tips of the bristles immediately in front of and below the eye, black, so as to produce the effect of an ill-defined narrow black semi-circle running round the front of the eye. The whole of the upper surface, a rich, somewhat rufous, slightly chocolate-tinted brown, darkest on the head and nape, and even then not very

dark, and a good deal paler, and losing its chocolate shade on the quills and tail. The tail exhibits on the central feathers four very narrow pale yellowish brown bars, and there are similar bars on the exterior webs of all the lateral tail feathers except the outermost ones. The throat is yellowish white, with a rufous brown patch. The whole of the rest of the lower parts including the wing lining are nearly similar in tint to the back, but somewhat more rufous; each of the feathers of the abdomen and flanks exhibits two or more pairs of small yellowish white spots or imperfect bars, which, even where best defined, are narrow, imperfect, widely separated, and by no means conspicuous, all but the one nearest the point being hidden by the over-lapping of the feather. The lower tail coverts are a paler and less rufous brown, and are more broadly and conspicuously barred with white.

Since writing the above, I have been favored by Mr. Ball, of the Geological Survey, with the sight of another specimen of the same species, procured, he informs me, in the Andamans. This bird is decidedly distinct from Col. Tytler's *Affinis*, of which species, or supposed species, Mr. Ball also sent me a specimen, obtained, as I understand him, from the Nicobars.

Mirafra Immaculata, *Sp. Nov.*

Size and shape of Mirafra Assamica, upper surface, dull earthy brown; striations, few and ill-defined. Breast, almost entirely spotless.

I HAVE now had by me for many years a large *Mirafra* procured on Deobund, a hill some 9,000 feet high, in the neighbourhood of Mussoorie. Never having been able to obtain a second specimen, I have hitherto hesitated to describe it, but it seems so very distinct from *Assamica*, the only species which at all closely approaches it, that in the hopes of other specimens turning up, I now venture to give it a "local habitation and a name."

I may premise that of our four *Mirafras* three, viz., *Affinis*, *Erythroptera*, and *Cantillans* have the hind claw short, averaging perhaps 0.3 inch in length. *Assamica*, on the other hand, has a comparatively long claw, varying from 0.5 to 0.6 inch. The present species approaches *Assamica* in this respect, having the hind claws 0.6 inch in length.

From *Assamica*, however, it may be at once separated by the difference in the tint of the upper surface, which in this

latter is a pale earthy grey, the feathers centred with dark hair-brown, so as to produce the effect of strongly marked striations on the whole of the head and mantle. In the present species these parts are a dull earthy brown, without the slightest tinge of grey, and except just in the centre of the back where they are better marked, the feathers are only very faintly darkly centred.

All four of our Indian *Mirafra*s hitherto described are characterized by well-marked dark spots on the breast. In the present species there is scarcely a trace of *any* spotting on the breast.

I have no idea of the distribution of this new species, but it is not apparently found in the Dhoon, from which locality as well as from the north of the Saharunpoor district, I have received the true *Assamica*.

Dimensions (from the dry skin)—Length, 5.75 inches; wing, 3.35; tail, 1.9; bill at front, 0.6; from gape, 0.72; tarsus, 1.0; hind toe and claw, 1.12; claw 0.6.

Description.—Whole top of the head, back of the neck, back scapulars and rump, dull earthy brown, not either ashy or olive; feathers of the head faintly, of the interscapular region and scapulars more distinctly, and of the other parts scarcely perceptibly centred with hair-brown; quills and coverts dark hair-brown; primaries (except the two first) and their greater coverts, broadly margined on their outer webs with bright ferruginous; the rest of the quills and coverts broadly margined with ferruginous buff. The tail paler hair-brown than the quills, the central feathers broadly margined on both webs, and the lateral feathers on the external webs with rufous or rufous buff. The upper tail coverts, which are pale hair-brown margined with pale earthy brown, extend to within 0.6 of the end of the tail. The lores and orbital region and cheeks are pale rufous; from the gape diverge two narrow dusky brown lines, one running parallel to, and below the eye, and joining into the brownish tips of the ear-coverts, and the other, running down along the jaw, and lost in some very faint spots on the sides of the neck. The chin is whitish, the whole of the rest of the lower parts is a uniform pale rufous, (brighter and more decided however, than in *Assamica*) more or less infuscated on the flanks. On the breast there is just a trace of a very few dusky spots, not noticeable unless closely looked into. The axillaries, the whole wing lining, and the inner margins of the quills, inside a line drawn from the base of the first to the end of the last primary, are a very pure bright salmon rufous.

Procarduelis Mandellii, Sp. Nov.

Approaches *P. Nipalensis*; but smaller, everywhere paler; bill intermediate between *Procarduelis* and *Propasser*; throat and breast, unicolorous.

MORE than a year ago Mr. Mandelli gave me, with a number of *Procarduelis Nipalensis*, two males and one female of a very similar species, which he was inclined to believe distinct. These birds by some oversight have never been properly examined until now. On comparing them I find that they are undoubtedly a new and unrecorded species; at any rate they are to be found neither in Hodgson's Drawings, Bon: and Schl.; Monographie des Loxiens, Jerdon, or any other work to which I have access. At first sight the males may be easily confounded with those of *Nipalensis*, but they are altogether paler than this species; there is no dark band across the chest and along the sides, and no dark band through the eye as in this species; and the bill, though quite as long, is much less cardueline in its character and much broader. Indeed it is more like that of *Propasser Rhodochrous* than of *P. Nipalensis*; the wing however has the three first primaries equal as in that of *Nipalensis*, and the general style of coloring is closer to *Procarduelis* than that of *Propasser*, and I therefore place it for the present under the former. The wings in *P. Nipalensis* vary in the male from 3.4 to 3.6 inches; in the female from 3.2 to 3.45 inches, so that the present species is considerably smaller. It was procured during the cold season in the neighbourhood of Darjeeling, and appears to be common there, Mr. Mandelli having, if I remember right, a considerable series.

To Mr. Mandelli is entirely due the credit of discriminating this species, as when first shewn to me I did not, strange to say, recognize its distinctness; and it was only in course of arranging my museum that I came across the specimens, and remembered how persistently he had assured me that it was not *P. Nipalensis*. The bill is so very distinct, as also the coloring of some parts, that I cannot now explain how I came to overlook the bird. To Mr. Mandelli I may mention also belongs the merit of discriminating *P. Saturatus*, Blanford, of which he wrote to me, as distinct from any in Jerdon, long before he sent the specimens to Mr. Blanford, which the latter described. Indeed, my museum contains no less than six specimens of this species, sent me by Mr. Mandelli, some of which I have had by me nearly eighteen months; but which I hesitated to

describe as new, doubting whether, despite the description given by Moore, *Saturatus* might not be *Pulcherrimus*, Hodgson; and a drawing of Mr. Hodgson's which he gives as the young of *Pulcherrimus*, made me doubt still farther on this point. While on this subject I may mention that I quite agree with Mr. Blanford that the female *Propasser* figured by Moore, Pro. Z. S. 1855, p. 215, is not that of *P. Thura*, not for the reason assigned by him, *viz.*, that it is too rufous below, but because the rufous is wrongly distributed, and because the rump and upper tail coverts in the female *P. Thura* are conspicuously tinged with yellow, a point which could never have escaped Mr. Wolf. Further, because Mr. Moore says, that the color of the underparts of his female bird was comparatively uniform, with but faint dark centres to the feathers, whereas in the true female *Thura*, there is a strong contrast between the coloring of different portions of the lower surface, and the dark centres are much more strongly marked than in any other species of the whole group. These very strongly marked centres to the feathers, and the comparatively very rusty rufous chin and throat are what serve at once to distinguish the female *Thura*. The ground color of the centre abdomen is always white, more or less faintly tinged with fulvous; but the ferruginous color of the chin and throat, while sometimes confined to these parts, at other times extends over the whole of the breast, sides, and flanks, so that really Wolf's figure of Moore's female *Propasser*, though much too grey about the chin and throat, is not nearly rufous enough on the breast and sides for some specimens of *Thura*. As a matter of fact, I entertain no doubt that Moore's female *Propasser* belonged to the species now christened *Saturatus*. Mr. Keulemans' drawing given by Mr. Blanford in J. A. S. B., Vol. XLI., 1872, is of a young female, much too yellow about the throat and chin for the adult, which is precisely like the bird figured by Wolf, and what makes me the more certain of this identification is that the female of *Saturatus* is conspicuous for the very faint darker centres to the feathers of the lower parts, one of the leading characters assigned by Mr. Moore to his bird.

Rhodopepelus, I may add, may be distinguished at once from all our other Indian *Propassers* by the strongly marked tippings to both the greater and median coverts, and tippings to the exterior webs of the tertiaries, the covert tippings forming two very conspicuous wing bars in both sexes, rosy-white in male, pale buffy or yellowish white in the female.

To return now to *Procarduelis Mandellii*.

Dimensions (taken from the dry skin.)—Male; length, 5.25

inches; wing, 3·2 to 3·3 inches; tail, 2 to 2·25 inches; tarsus, 0·75 inch nearly; bill at front, 0·44 to 0·5 inch.

Female; length, 5 inch; wing, 2·1 inches; tail, 2·25 inches; tarsus, 0·7 inch; bill at front, 0·49 inch.

(N. B.—Only two males and one supposed female measured, the latter may be a young male.)

Description.—Whole head, neck all round, breast, back, rump, lesser and median wing coverts deep ruddy, varying much in tint; and on the back and breast confined to the tips, which, owing to the feathers not overlapping sufficiently, leave on the back and coverts a certain amount of the dark brown and on the breast of the pale grey brown bases of the feathers visible; the forehead and the whole top of the head is a brighter and richer ruddy than the rest; there is no distinct superciliary stripe as in *Nipalensis*, and unlike the latter species the occiput and forehead are unicolorous. The ear-coverts and cheeks are duller, the grey bases of the feathers shewing through more or less; the throat and breast are more rosy; there is no deep band on the breast or dark stripe through the eyes as in *Nipalensis*; the abdomen and flanks are a pale grey brown, the feathers more or less faintly margined and tipped with ruddy; there are a few white feathers about the vent; the tibial plumes and lower tail coverts, are a pale grey brown, the latter narrowly margined and tipped with pure white; the quills, greater coverts, and tail feathers are conspicuously margined with a sort of ruddy ferruginous, or ruddy olive, the colour differing in my two specimens.

Supposed female.—The whole bird (except the wings and tail which are hair-brown) a dull olive brown, becoming albescent on the abdomen and mingled with dull white about the vent; the whole cap, back, rump, and upper tail coverts overlaid with a slightly rusty ruddy tint, strongest on the rump; the wings and tail as in the male, except that the lesser coverts are margined similarly to the quills and greater coverts with a sort of ruddy rusty hue; the shafts of the ear-coverts are slightly paler than the webs, giving a faintly striated appearance to these parts; with this exception the bird is entirely free from any striations, such as more or less characterise the back of the female *Nipalensis*, and it is altogether of a much paler tint than the latter.

The males in this species, I ought to note, very closely resemble in general appearance *Carpodacus Erythrinus* in almost full breeding plumage; but the bill is conspicuously slenderer and more compressed towards the tip, and the grey brown under tail coverts with the narrow well-marked white

margins alone suffice to separate the bird; besides this, the tints of our bird are duller and darker, both above and below, and the bird itself is smaller. Altogether, the bird is as nearly as possible intermediate between *P. Nipalensis* and *Carpodacus Erythrinus*, and but that the bill approaches more nearly to the former, I should have placed this species under *Carpodacus*.

Eudromias Tenuirostris, Sp. Nov.

Bill, long and slender; *wing*, 5·7 inches; *no white bar on later primaries; shafts of all the primaries hair-brown, strongly marked; umber brown pectoral collar*.

I HAVE had lying by me for years a ring plover which I have never yet been able to identify: it may not be new, but it is certainly new to India.

Dr. Jerdon gave me this specimen years ago, as *Leschenaulti*, or as it should more properly stand *Geoffroyi*. I at the time told him that it was not this species. We had, however, no specimens of *Geoffroyi* with which to compare it, and nothing further was said about it at the time. Subsequently, I have compared it with large series, of *Geoffroyi*, *Mongolicus*, *Hiaticula*, *Cantianus*, and *Curonicus*, with Mr. Hartings's elaborate and careful descriptions of *Eu. Asiaticus* and *Vereodus*, yet it certainly belongs to none of these species. The bill is elongated and slender; in fact it is almost precisely that of *Morinellus*, but more elongated, and the lower mandible markedly slenderer. This fact alone would suffice to show that the bird cannot belong to any of the species of *Ægialites* above enumerated. Putting this aside, however, *Geoffroyi*, *Cantianus*, and *Mongolicus* have the whole of the shaft of the first primary, and all but the tips and the bases of the shafts of the other primaries white. *Hiaticula* has less of the shaft, but still a considerable portion of it, white. *Curonicus* has the first shaft white, the others, hair-brown. *Asiaticus* has all the shafts usually white; *Vereodus* the first and a portion of second shaft, white, the rest brown; the present species has the whole of the shafts brown, only at the extreme tips of each primary, so far as in the closed wing they project beyond the following one, are the shafts albescent, and here even not for the whole length of such tip but only for about two-thirds of the length; the remaining terminal one-third of the shafts of the tip being hair brown like the rest of the shaft.

Again there is no white bar on the outer webs of the later primaries as there is in *Geoffroyi*, *Mongolicus*, and *Cantianus*;

but the last seven primaries are conspicuously, though very narrowly, margined at the tips with pure white, and all the secondaries have the outer webs towards the tips pure white. The outer tail feathers are very like those of *Morinellus*, a broad pure white tip on both webs, then a dark bar fading into the grey brown of the rest of the feather, and only a very narrow margin of white running up the outer web, for a short distance. There is a very narrow white collar on the back of the neck, and from either side of the nape descends a dark umber brown pectoral collar.

All these peculiarities combined ought to render this species, if not new, easily identifiable; but to prevent any possibility of mistakes, I append exact dimensions and descriptions taken from the dry skin.

I may note that Dr. Jerdon believed that he obtained this specimen in Burmah; but was not sure whether he got it on the coast or inland.

Dimensions.—Length, 7·25 inches; wing, 5·7 inches; tarsus, 1·35 inches; bare portion of tibia, 0·5 inches; bill at front, 0·82 inch; tail, 2·75 inches; first primary longest; second, 0·05, third, 0·3, fourth, 0·75, fifth, 1·2 inches shorter than the first.

Description.—Lores, forehead, front of the head, and orbital region rufous white (the specimen is a good deal shot about the front of the head, and it is difficult to make out whether there was or was not a dark line through the lores); the crown, occiput, and nape, a dull earthy brown, paler and slightly tinged with rufous on the front, darker posteriorly; the whole of the lower parts, except the pectoral collar, including sides, axillaries, wing lining, and lower tail coverts, pure white. A very narrow white collar at the base of the nape; immediately behind this from either side of the back of the neck springs an umber, or dark hair-brown half collar, which completely encircles the upper part of the breast; this collar is not prolonged over the back of the neck. The whole of the back, coverts, scapulars, and tertiaries, and the central tail feathers are a nearly uniform-dull pale brown; most of the feathers of the lesser coverts, the shorter scapulars, and the upper tail coverts, narrowly and inconspicuously margined with dull pale ferruginous. The primaries and secondaries are pale hair-brown; the winglet and primary greater coverts being somewhat conspicuously darker. The edge of the wing just below the carpal joint is pure white. The last seven primaries, earlier secondaries, the primary greater coverts, and the winglet narrowly margined at the tips with pure white; the greater secondary coverts rather broadly tipped with white; the later secondaries with the en-

ture outer webs towards the tips, pure white. The two central tail feathers unicolorous with the back, the next on either side similar, but albescent at the tip, and with an obscure dark subterminal band; the other lateral feathers broadly tipped on both webs with white, which tipping is succeeded by a broad very dark hair-brown transverse band, which gradually pales into the dull earthy brown of the whole basal portion of the feather. The external feather of all has a very narrow white margin to the outer web, and some more white on this latter quite at the base of the feather. The bill at present appears a sort of reddish brown; legs and feet, pale yellow. It is impossible to guess what the original color may have been.

A. O. H.

Falco Barbarus in India.

THE occurrence of this species, heretofore believed to be confined to the Southern Mediterranean littoral, in India, is a matter of much interest; and as it must now be included in the Indian Avifauna, the following abstract of its synonymy will be useful to Indian Ornithologists:

Falco Barbarus, Linn. The Barbary Falcon.

Accipiter Falco	tunetanus	Briss Orn I,	p. 343,	(1763)
Falco Barbarus	Linn	Syst. Nat	p. 125,	(1766)
	Gmel	"	p. 272,	(1789)
	Lath	Ind Orn	p. 33,	(1790)
		Syn	I, p. 72,	(1781)
		Gen Hist B I,	p. 82 B,	(1829)
„ Alphanet	Schl	Tr. de Fauconnerie		
„ Punicus	Levaill Jun	Exp. Sci d'Algérie.		
Gennaja Barbarus	Bonap	Cat Ois d'Eur. et de l'Alg.		
Barbary Falcon	Gentl. Reere		p. 208,	(1677)
Falco Pelegrinoides	Temm	Pl. Col.	479.	

All the synonymes but the last, I quote from Mr. Alfred Newton, as given by Mr. Salvin (*Ibis*, 1859, p. 188). As to the identity of this species with Temminck's *Pelegrinoides*, no possible doubt exists in my mind. His description, which I transcribe, agrees in the minutest particulars with both my birds. He says "the forehead presents a mixture of rufous and dull white. This part of the head is encircled by a black" (dark slaty in mine,) "horse-shoe-shaped band, of which the lateral branches

pass over the eyes, their extreme points joining in front of the eyes, the moustachial stripes, which extend along the sides of the neck. The occiput and nape are covered by a rufous half-collar, marked with three black spots, of which the centre one forms a band on the nape. The back and the wings are a light bluish grey, with large spots and irregular bars of bluish black.

“The tail which is a lighter grey than the back, is barred transversely with black bands, very narrow towards the bases of the feathers, but widening gradually towards their ends, the tips of which are white.

“The chest is pure isabelline” (in mine, slightly rufous creamy.) “The flanks, vent, and abdomen are of the same color; but the feathers bear very narrow longitudinal striæ and little triangular black spots. The base of the beak is yellow, but the point blue. The cere and the feet are beautiful yellow, and the orbital skin orange. The male is about 14·3 inches (*he* says a little more than 13 French inches which are equal to 14·24 English inches.) The female not larger than the male *F. Peregrinus*.”

I defy any one to write in as few words a more absolutely accurate description of my birds than the preceding, except in the one single point, that the horse-shoe in my birds is dark slaty and not black. I can add nothing to the description. The nearly white chin, throat, and sides of neck, the spotless rufescent creamy breast, the tiny triangular spots of the abdomen, the huge, broad, rufous collar with the three dark spots, and the small size serve to distinguish this species from every other yet observed in India. The upper surface is as pale as a very old *Babylonicus*, but the lower surface, which in this latter species grows darker as the bird grows older, is far paler than in any adult *Babylonicus* I have yet seen, and I have examined a good many. I have now two specimens, and both are exactly alike, except as regards size. The male was procured early in 1872, by Dr. Stoliczka, in Cutch; the female was shot by F. R. Blewitt, Esq., in the Nursingpoor district (Central Provinces,) on the 16th December, 1869. None of us distinguished these birds—all of us set them down as very pale *Babylonicus*, and it was only when I came to compare them with my specimens and others kindly lent for comparison of this latter species, that I fully realized that they were distinct: then I referred to the measurements and then Temminck's figures and Salvin's in the *Ibis* (which latter is excellent, though in *my* birds the bars on the sides have almost all become mere triangular spots) occurred to me; and once on the right track, I soon saw that there was no possibility of mistaking the identity of this

beautiful, and for its size most powerful, little falcon. In both specimens the sexes were ascertained and recorded by, I need not say, careful observers. The female was measured in the flesh, and I append her dimensions as well as a few of those of the male taken from the dry skins. It will be seen that while the wings agree well enough with Mr. Salvin's measurements, the female bird as measured in the flesh was very considerably longer than he estimated his from the dry skin.

Dimensions.—(Female killed on the 16th December, 1869, Nursingpoor.) Length, 15·5 inches; expanse, 36·4 inches; wing, 11·4 inches; tail, 6·4 inches; tarsus, 1·8 inch; mid toe to root of claw, 1·8 inch; its claw straight, 0·7 inch; hind toe, 0·8 inch; its claw, 0·78 inch; inner toe, 1·1 inch; its claw, 0·68 inch; bill straight from edge of cere to point, 0·7 inch; from gape, 1·1 inch; width of gape, 1·1 inch; height at front at margin of cere, 0·42 inch; length of cere, 0·3 inch; closed wings extend 1·9 inch beyond end of tail. Lower tail coverts fall short of end of tail by 1·25 inch; 1st quills, 0·35, 3rd quills, 0·5, 4th quill, 1·1 inches shorter than 2nd, which is longest. Exterior tail feathers, 0·4 inches, shorter than central ones. Weight, 1 lb. 2 oz.

(Male killed January, 1872, in Cutch.) Length, (actual of skin, 12·75 inches, say in life about) 14 inches; wing, 10·8 inches; tail, 5 inches; tarsus, 1·6 inches, actually feathered in front for about 0·6 inch; mid toe to root of claw, 1·63 inch; 1st primary, 0·3 inch; 2nd, 0·55, and 4th, 1·15 shorter than the 2nd, which is longest.

The great size of the feet of the male, as compared with the size of the whole bird, is very conspicuous.

A. O. H.

On the breeding of *Elanus Melanopterus*.

NOTHING accurate has, as far as I know, yet been published about the breeding of the black-winged kite. Common as this species is during the cold season in many parts of India, it has hitherto eluded most of our Indian oologists.

The merit of taking the first nest of this species belongs to my friend, Mr. F. R. Blewitt, to whom I owe more rare eggs than to any one else in India. Mr. Blewitt's extraordinary practical knowledge of the habits of birds and his persevering observations of them render it difficult for any species that breeds within twenty miles of his station to escape him. *Grauculus Macii*, *Volvocivora Melaschistos*, *Brachyurus Coronatus*, and many others first,

I believe, yielded their eggs to him of all our Indian oologists, and the number of these latter is now legion.

Recently, Mr. Adam has also taken the nest, and I think that all Indian ornithologists will read with interest the accounts given by these two gentlemen of their successes.

Mr. Blewitt writes, "This kite (*Elanus Melanopterus*) evidently breeds from, I should say, the middle of November to January. I first secured its eggs in the Sumbulpoor district on the 20th December, while I obtained a pair of quite young half fledged birds on the 11th January. The nests, including a newly made one found empty, were placed on the forks of the upper branches of low forest trees about 18 to 20 feet from the ground. In form they were circular and composed of small sticks and twigs somewhat compactly put together, with the egg cavity about an inch deep, neatly lined with fine grass. There is no doubt that this kite breeds in all those tracts in the Sumbulpoor district that are sparsely wooded and extensively cultivated with rice; and probably as it is somewhat common there, this may also be the case, in the Raipoor district. I take three to be the normal number of the eggs. The young birds had become very tame, when, unfortunately, one day the crows carried off the male bird and so injured it, that it died a day or two after. The female on losing her mate pined away and died a week after. I had them about seven weeks. In these young kites, when I got them, the iris was a dark brown, but when I lost them, light hazel. From this fact, and other inspections of numerous specimens from the immature to the adult stage, I am certainly of opinion that the iris is first of all dark brown, which gradually with age changes to the light hazel, then yellow, and lastly, to the carbuncle red of the full adult. I have never noticed the alleged crepuscular habits of this bird."

Mr. Adam says, "At the village of Kuchrodda, about six miles south of the town of Sambhur, there is a large jheel with a tope of khajur palms, (*Phœnix Sylvestris*) on one side, and straggling trees of this species all round.

"On the 19th July, 1872, near one of the solitary khajur trees, I observed an *Elanus Melanopterus*, and as this bird is rather rare about the Sambhur Lake, I went in its direction, intending to kill it; but just as it rose from the ground, I saw it was carrying a twig in its bill, and this it carried to the top of the khajur where I found it had a nest nearly finished. Both birds were employed taking twigs to the nest.

"On the 7th August, I sent a man to see if the nest contained eggs, but he found it had been abandoned, and a new nest commenced on one of a group of six Lasora trees (*Cordia*,

myra) which stood near to the khajur. He also informed me he had seen the birds *in coitu*.

"I inspected the nest on the 10th August, and found one of the birds sitting on it. The nest was so loosely constructed that with my binoculars I could see that it contained no eggs.

"I again inspected the nest on the 14th August, and found that it contained two eggs. One of the birds sat close on the nest and would not be frightened off by a man beating on the trunk of the tree with a stick, and this same bird made a swoop at my servant as he was climbing the tree.

"The nest was situated on the very top of the Lasora tree, and was from 25 to 30 feet from the ground. In shape it was circular and with the exception of two or three pieces of sarpat grass (*Saccharum sara*) there was no attempt at lining. It was about ten inches in diameter, and the egg cavity had a depression of about two inches. The twigs of which the nest was composed were of an uniform size throughout, and I could distinguish twigs from the following plants which were growing close by; viz., Jarberri, (*Zizyphus nummularia*); Bunna, (*Edwardsia mollis*); Khep, (*Crotolaria burhia*); Jhoghru, (*Tephrosia purpurea*.) All these twigs were very loosely and openly laced together.

"The eggs are without gloss, both have a light creamy white ground of which, however, little is shewn. One had the broader end all blotched over with confluent patches of deep rusty red, while the smaller had numerous spots and freckles of a much lighter brownish red. The other egg is of a darker and purer blood-red, and the mass of confluent color is at the smaller end, while the larger is very thickly blotched, streaked, and clouded with darker and lighter shades of brownish red."

The eggs which I owe to Mr. Blewitt are unlike those of any other species of kite with which I am acquainted. In shape and general appearance, they are more like miniature *Neophrons* than any other egg with which I am acquainted. In shape they are short broad ovals. The texture of the shell is somewhat chalky. The ground color, so far as anything can be seen of it, is dull white, but the whole egg is mottled, smeared, and clouded with a dull brownish red which in some eggs is most intense at one end where no portions of the ground color are left visible, while in other eggs the same is the case with the other end; while in a third type both ends and in fact the whole surface is pretty uniformly mottled all over, leaving scarcely any portion of the ground color visible. When held up against the light the shell is a pale sea-green: it has little or no gloss. These eggs do not correspond at all with Mr. Bree's figures. They are much smaller and much more highly colored. There is no mistake, however,

about the authenticity of *these* eggs, I feel sure, for Mr. Adam's eggs are of precisely the same type, although one of them shews a good deal of the ground color (only slightly freckled and mottled with brownish red,) at the small end.

All the eggs are nearly the same size: they vary from 1.42 to 1.52 inches in length, and from 1.16 to 1.25 inches in breadth; but the average is 1.48 by 1.2 inches.

The question arises do these birds breed twice a year or is the difference in season at which Messrs. Blewitt and Adam obtained the eggs, due to differences of climate and locality.

The Sambhur Lake is situated in the bare sandy portion of Rajpootana, which a hundred miles further west merges in the great desert. The rain fall at Sambhur is, perhaps, on the average about ten inches. Sumbulpoor is in the east on the banks of the Mahanuddy, a country of rice swamps, forest, and jungle where the rain-fall is fully five times as great as at Sambhur, and it seems at least most probable, therefore, that these differences in season are due to climatic influences.

Mr. R. Thompson (*vide* page 339, Rough Notes,) informed me that in Lower Gurhwal and the Dehra Dhoon, "they breed from April to June, choosing low trees, usually one standing by itself in (for those localities) sparsely wooded spots to build on. The nest is circular, not unlike that of *Corvus Culmenatus*, composed of small sticks and twigs and lined with fine grass roots and fibres. This species is sparingly found along the foot of the Himalayas. It does not enter valleys unless, as in the case of the Patlee and Dehra Dhoons, they happen to be pretty open." Writing later from the Central Provinces he says, "In the Central Provinces, the breeding season is from December to January; the nest is placed upon small trees from 15 to 20 feet from the ground. It is circular like a crow's nest, of about the same size and composed of the same materials. I have now found two unfinished nests of this bird. The first was in the Saugor district, on the banks of a small nullah, in a pretty open bit of country yet sufficiently wooded to keep the place moist and damp. This nest was found on the 17th November, 1869. The second one was found in the Seoni plateau, on the 6th January, 1871, was placed on a small *Boswellia thurifera* tree, on the edge of a deep ravine. The male bird was observed rising from the ground carrying a twig in his bill and going directly into the tree. This fact led to the finding of the nest which was nearly complete. In the valleys of the Meikle range, in the winter of 1869-70, I frequently met with this kite and broods of young ones, and even saw their nests, but have not been fortunate enough to find the eggs."

The eggs are figured by Bree from specimens which Mr. Tristram obtained in Algeria, where the bird itself appears to be rare. In Europe, it would not seem to breed, though it is said to be a regular visitant to Greece and to occur as a straggler throughout the south of Europe. According to the figures, the eggs measure 1.75 by 1.38 inches and 1.66 by 1.39 inches. The one has a bluish, the other adult creamy-white, ground. Both are somewhat sparingly streaked and blotched with a pale yellowish brown, and one exhibits besides a few deep brownish red blotches.

Mr. Tristram remarks, that "these eggs are interesting as corroborating by their character the position of the species between *Astur* and *Buteo*.

To me these eggs of ours do not appear to have the slightest affinity for those of either *Astur* or *Buteo*. They are much more like kestrel's and still more, as already observed, like miniature *Neophrons*. In Egypt the birds clearly lay eggs like ours, and not like those from Algeria. Mr. Shelly, who took a nest there, remarks, (*Ibis*, 1870, page 149.) "On the 28th of March, having seen a bird flying along a row of these trees, we walked up to the spot, and presently heard the cry of its mate which we thus discovered sitting on its nest placed at the top of a young *Mimosa*, about twenty feet from the ground. The nest contained four eggs, about the size of a kestrel's, and varying considerably in color, some being as dark as kestrel's eggs, while others shew much of the dark ground between the blotches."

And again, speaking of another nest, *loc. cit.*, he says, "On the 30th March, at Boosh, we found another nest of this bird, situated on the end of a bough at the top of a high *Mimosa*. Owing to the difficulty in reaching it, we unfortunately broke the four eggs it contained. They were hard-set, but in colour exactly resembled the nestful we brought back from Egypt."

I can scarcely believe that Mr. Tristram's eggs really belonged to this species. They are so very much larger, and so entirely differently coloured, to those obtained both in India and Egypt; at the same time it is only right to note that Lieut. Burgess (Pro. Zool. Soc. 1854, page 3, the only Indian observer who has, so far as I have been able to ascertain, made any record of the nidification of this species) remarks: "But A. F. Davidson, Esq., of the Revenue Survey, a great sportsman and accurate observer of birds, told me, that he obtained a young bird of this species and two eggs. The eggs were of a pure white colour, and about as large as the egg of the Indian blue pigeon. They were laid during the month of December."

Le Vaillant again tells us, that it lays four or five white eggs. So it is within the limits of possibility that the eggs of this

species do vary from white to deep blood-red, and from the size of a Pigeon to that of a Peregrine; *but* it will require a good deal of further evidence to convince *me* of the fact.

A. O. H.

The Wagtails of India, No. 1.

THERE is certainly no group of birds that is more troublesome or perplexing than the wagtails, and though I cannot pretend to have solved all the difficulties in regard to our Indian members of the group, I hope to be able to furnish a few notes that may facilitate their ultimate solution.

In the present paper I propose to confine my remarks to the grey and black wagtails of which *M. Alba*, Linn, and *M. Yarrelli*, Gould, may be taken as types.

Setting aside *Motacilla Madraspatana*, the large size (length on the average, 9 inches; wing, 4 inches or nearly so,) and well defined plumage of which renders it always easy of identification, there remain five species which have been admitted by Mr. Blyth into our Indian Avifauna. In two of these, in their breeding plumage at any rate, the whole back is black, namely *M. Luzoniensis*, Scopoli, and *M. Hodgsoni*, G. R. Gray; while in the other three, the backs remain at all seasons grey; namely *M. Personata*, Gould, *M. Dukhunensis*, Sykes, and *M. Alba*, Linnæus.

Besides *M. Luzoniensis* and *Hodgsoni*, Mr. Gray admits a third eastern species *M. Japonica*, Swinhoe, figured by Schlegel in the Fauna Japonica, as *M. Lugens*.

All these three black-backed races are somewhat larger than the grey-backed ones with which we shall have to deal hereafter, the wings in the males varying apparently from 3·7 to 3·9 inches, while in the same sex in *Alba* and *Dukhunensis*, they average from 3·4 to 3·6 inches, and in *Personata* from 3·5 to 3·7 inches, only in one specimen out of fifty extending to 3·75 inches. The bills also in the eastern black-backed races are as a rule conspicuously longer.

Mr. Schlegel, if I understand him correctly, considers all these three eastern black-backed races to be one and the same species, and he further unites with them *M. Lugubris*, Pallas, (figured by Gould, birds of Europe, pl. 142,) which has a partly grey back, as one stage of the winter plumage of this same species.

In regard to *Lugubris*, I am not in a position to offer any useful opinion; but I have every reason to believe that *Luzoniensis*, *Hodgsoni*, and *Japonica* are only different stages

of the summer plumage of the same species. Briefly, the differences of these three forms may be thus described: in *Luzoniensis*, the whole of the front of the head as far back as the crown, lores, and the whole of the face, sides of the neck, chin and throat are pure white; occiput, nape, mantle, and a broad band on the breast are black; in *Hodgsoni*, only the front of the head, lores, orbital region, and ear-coverts, chin, and upper portion of the throat are white; the whole of the rest of the sides of the neck and throat have become unbroken black, joined into the breast band, and from the gape, a narrow black line runs below the orbital region and ear-coverts, dividing these from the white of the chin and upper throat and joining into the black of the sides of the neck; the major portion of the visible parts of the wing coverts of *Luzoniensis* are white, and the quills, too, are margined with white; the secondaries more broadly towards their tips; in *Hodgsoni*, there is even more white upon the wing.

There can, I think, be no doubt, that *Hodgsoni* is only a somewhat more advanced stage than *Luzoniensis*, and I may notice that both forms are beautifully figured in Mr. Hodgson's drawings now before me, and that he recognized their identity, assigning to both the name of *Alboides*. When we turn to *Lugens* as figured by Schlegel, Fauna Japonica, the lores, the whole of the space below the eye, and the eye coverts have become black; the frontal patch only extends backwards as far as the front of the eye over which it extends as a supercilium; the white of the chin is still farther contracted than in *Hodgsoni*, and there is, if possible, even more white on the wing than in this latter species; this is a still nearer approach to the full breeding plumage.

The full breeding plumage has never, I believe, been yet described. I have had specimens, typical of each of the three forms above described, obtained in the Himalayas, at different times of the year, between April and September; but specimens killed at the end of May and early in June, shew what the full breeding plumage is; namely the whole chin, throat, and top of the head, with the mantle, sides of the neck, and back pure velvet black; and the white, which in each preceding stage was gradually diminishing, now reduced to a somewhat narrow frontal band, continued as a superciliary stripe over the eye and backwards over the ear-coverts. If any one insists upon making a fourth species out of this full breeding stage, he may call it *Superciliaris*; but I do not myself doubt that one and all are stages of the same species. I should mention that in the final stage the closed wing looks almost entirely white.

The well-marked black moustachial line which has been considered the distinguishing character of *Hodgsoni* is clearly merely a stage of plumage. Exactly the same characteristic line is met with in *Personata*, about March, when the black of the breast begins to creep up the upper part of the throat to the chin; and this moustachial stripe shews itself again in September, when the chin has become white and the throat has begun to exhibit snowy speckles; in fact both in *Luzoniensis*, Scop., (which is, I suppose, the name that must stand founded on plate 29 of Sonnerat's *Voyage à la Nouvelle Guinée*) and *Personata*, in both of which I have shewn that the chin and throat become ultimately quite black, it is the feathers along this so-called moustachial line which first, (as compared with those of the immediately contiguous parts) assume, and latest divest themselves of, the black tint.

In the breeding plumage the female of *Luzoniensis* differs only in its smaller size, and the somewhat browner black of the back, somewhat as may be observed in the breeding plumage of the two sexes of *Madraspatana*.

Of the cold weather plumage of this species, I cannot speak with any great certainty, and on this point further careful observations are I think necessary. I have as yet obtained but few specimens showing the transition from the grey of the winter to the black of the summer plumage and *vice versa*; but at the same time there is no doubt of the fact, and it would be very interesting to trace the changes in plumage from October to March, as I have endeavoured to trace those from April to September. It may be that *Lugubris*, as supposed by Schlegel, is a cold weather form of *Luzoniensis*, but the distribution of the black and white in the former species hardly looks to me compatible with this supposition.

Of the grey-backed species I may premise that I myself have never been satisfied that *Dukhunensis* really deserves specific separation from *Alba*, any more than I am satisfied that *Pratincola Indica* and *Pratincola Rubicola* require distinct specific appellations. The two forms so closely resemble each other, that all that I shall have to say about the one will, I believe, be equally applicable to the other. Certainly there is no constant difference in size in the two species. I have five male *Alba* before me from different places on the Continent, the wings of which vary from 3·4 to 3·6 inches; and I have forty specimens of *Dukhunensis* about half of which are male, and in this latter sex the wings in this race also vary from 3·4 to 3·6 inches; in length of bill, tarsi, and tail, a certain amount of difference is observable amongst individuals of both races but none between the two as a body.

There remain first the coloration of the back, second the amount of white on the wing. Undoubtedly, taken as a body, the backs in *Alba* are a darker, and those of *Dukhunensis*, a paler grey; and again taken as a body the coverts, secondaries, and tertiaries in *Dukhunensis* are much more conspicuously and broadly margined with white than in *Alba*.⁺ But, *per contrā*, I have first a typical *Alba* absolutely identical in every respect with the European specimens. This is from Bhawalpoor, and is the only unmistakable *Alba* which I have yet seen in India; secondly, I have several *Dukhunensis* with the characteristic whiter wing, the backs of which are as dark as in any *Alba vera*; and thirdly, others with the light backs characteristic of *Dukhunensis*; but with no more white on the wing than in *Alba*. Under these circumstances it must, I think, remain an open question whether we ought to consider *Dukhunensis* a distinct species or merely a local race. I myself retain the name for convenience, but greatly doubt the value of the distinction, and having explained wherein the typical *Alba* differs from the typical *Dukhunensis*, shall say nothing further of *Alba*, but confine myself to *Dukhunensis* and *Personata*.

All my black-back wagtails have been exclusively procured in the Himalayas, from Cashmere to Sikkim. *Dukhunensis* and *Personata* on the other hand are widely distributed throughout the plains of India. My specimens of *Dukhunensis* are from various localities in Sindh, Jodhpoor, Bhawalpoor, Dehra Ghazi Khan, Lahore, Sirsa, Ferozepore, Rohtuck, Goorgaon, Simla, Saharunpoor, Etawah, Jhansie, Saugor, Chumparun, Sarun, and Dacca. *Personata* I have from Murdan, Cashmere, Lahore, Goorgaon, Simla, Kotegurh, Saharunpoor, Kumaon, and Etawah; and I have seen specimens of *both* I believe from almost every locality in the Punjab, the North-West Provinces, Oudh, and the Central Provinces, and of *Dukhunensis* from at least a dozen localities in Bengal.

In full breeding plumage, these two species are very readily distinguishable. *Dukhunensis* then has the whole front of the head, lores, orbital region, cheeks, ear-coverts, and a stripe down the side of the neck pure white. The posterior half of the crown, occiput, and nape, the chin, throat, and breast pure black. In *Personata*, on the other hand, the white is confined to a broad frontal band extending as far as the front of the eye, and stretching as a narrow supercilium backwards over the eye and part of the ear-coverts. Again in *Personata*, the whole visible portions of the wing coverts of the closed wing are pure white, whereas in *Dukhunensis* they are brown, broadly edged, it is true, with white, but not sufficiently so to enable the edgings to

conceal entirely (as they do in *Personata*), the brown portions of the feathers.

In the breeding plumage the males and females of *Personata* are undistinguishable, except that in the males the wings vary from 3·6 to 3·7 inches, while in the females they seem to vary from 3·4 to 3·55 inches. As regards *Dukhunensis*, the same may be the case; but it is curious that I have no female *Dukhunensis* of my own collecting, or of which the sex has been authenticated by a really careful and reliable observer, in the same full breeding plumage as the males. In *Alba* the female has always much less black upon the occiput, and the chin and throat are a duller and browner black, and the same difference somewhat exaggerated may exist in the race we designate *Dukhunensis*.

In winter, both *Personata* and *Dukhunensis* entirely lose in both sexes the black of the head, which is replaced in the male by a dark, in the female, by a lighter grey.

The black of the chin, throat, and breast is reduced in *Dukhunensis* to a moderately broad, more or less crescentic pectoral band, with two ill-defined broken blackish stripes running up the sides of the neck as it were from the points of the crescent, which stripes, never I think entirely disappear, though in some specimens they become nearly obsolete; the broad white frontal band remains unchanged in width or nearly so in the adult male, though its color is less pure; but in the female, it is greatly diminished in width so as in some specimens to become almost obsolete, while in all specimens it is more or less overlaid with sordid grey.

In *Personata*, on the other hand, the whole breast *always* remains, black, and though the chin and upper part of the throat are white, the lower part of the throat is still more or less speckled with black. In the perfect winter plumage of both species the amount of the black on the breast, sides of the neck, and throat at once serve to distinguish the two species, but specimens of *Dukhunensis* changing into winter plumage often (so far as the amount of black on the throat and breast is concerned) exactly resemble the perfect winter plumage of *Personata*, and the only ready and unfailing diagnosis of the two species is that in both sexes, and at all seasons, the ear-coverts and whole aural region are in *Personata* black, blackish or dark grey; in *Dukhunensis*, pure white or greyish or sordid white. This marked difference coupled with the conspicuously greater amount of white on the wings of *Personata* as compared with those of *Dukhunensis* ought to render the separation of any specimens of the two species comparatively easy.

I shall only add that I shall be very much obliged by the receipt of grey and black wagtails from all parts of the country, provided only that the *sex*, *date*, and *locality* are carefully noted for each specimen; unless the two former particulars, at any rate, are given, the specimen would be of little real use.

A. O. H.

Phœnicopterus Minor. Geoff. St. Hil.

P. Minor Geoff. St. Hil: *Bull. Soc. Philom.*, 11, p. 97. *P. Parvus*, Vieill: *Anal.*, p. 69, pl. col. 419; *Gal. des. Ois.* b. 273. *P. Minor*, Jerd. *Cat.* No. 374. *P. Rubidus*, Fielden, *Ibis*, 1868, p. 496.

It is some years now since I first obtained from the Delhi Museum, a specimen of a small and specially rosy flamingo, the shape of whose bill (the upper mandible of which when closed sank almost entirely within the lower mandible,) indicated it as undoubtedly specifically distinct from our larger Indian bird. Dr. Jerdon and myself both carefully examined this bird, compared it with the Pl. col., and with descriptions in other works, and came to the conclusion that it was *Phœnicopterus Minor*. A year later Captain Fielden obtained three small brilliantly rosy flamingoes, at Secunderabad, and described them under the specific name of *Rubidus*, in the *Ibis* for 1868. His birds were shot in July. My bird, which was obtained in January, was one of six brought in by native fowlers, who professed to have captured them on the Sambhur Lake.

In the *Ibis* for 1869, p. 440, Mr. G. R. Gray added the weight of his great authority to the distinctness of Captain Fielden's new species *Rubidus*. He published at the same time drawings of the head and bill of all the known species of flamingoes, and while separating *Rubidus* and *Minor* as belonging to the same sub-genus, which he called *Phœniconaias*, he thus indicated the difference between the two supposed species.

"Fig. 3, (*Rubidus*,) differs from Fig. 8, (*Minor*,) by the posterior margin of the lower mandible being very narrow and then slightly curved to the lower surface, thus giving an appearance of angulation. Fig. 8, (*Minor*,) has on the other hand the posterior margin of the lower mandible obliquely straight and broad to the surface beneath; the lateral edge of the lower mandible has a prominent longitudinal channel on the basal half, from which spring several less prominent ramifications that proceed upwards to the lateral margin."

These remarks and the accompanying figures considerably puzzled me, because my specimen was clearly *Minor*; the plumage moreover was by no means so brilliant as was described by Captain Fielden, the breast especially being simply a delicate pale rose color, entirely devoid of the dark red pink mottling described by him.

The only conclusion I could come to was that both *Minor* and *Rubidus* occurred in India. I however shewed the bird to Mr. R. M. Adam who is in charge of the Sambhur Lake, and owing to his kindness, I am now in a position to solve the mystery.

The facts are simply these: *P. Minor* is the male, *P. Rubidus*, the female; my bird was in the cold weather, while Captain Fielden's specimens were in the full breeding plumage.

The following note by Mr. Adam on the occurrence of this species at our Indian "Great Salt Lake," Sambhur, will, I feel sure, be read with great interest:

"Although I have constantly been on the watch for the small red Indian flamingo, similar to one shewn me in Mr. Hume's Collection, and have constantly scrutinized the immense flocks of flamingoes which for the greater part of the year frequent the Sambhur Lake, my endeavours were entirely unsuccessful until the 25th of January, 1872. On that date I obtained a very good specimen and on the 29th, I procured another, but this was too badly mauled to be preserved. On the 24th of February, when examining the salt-works, well out into the bed of the lake, I saw another specimen amongst a flock of *P. Roseus*, but it was far out of shot. However, before the close of the month, two more specimens were shot for me. In the month of March and beginning of April, no effort was spared to obtain more specimens; but although flocks varying in number from 100 to 300 of the species were observed, they kept too far out into the bed of the lake for any one to get at them. I may here note that the brilliant rosy plumage of the bird, to say nothing of the smaller size, made it quite easily distinguishable with a pair of binoculars from *P. Roseus*. Towards the middle and end of April, all the flamingoes, large and small, left the lake; but about the beginning of May several pretty large flocks, consisting solely of the smaller species made their appearance. I carefully examined one or two of these flocks with my binoculars, but failed to distinguish a single specimen of *P. Roseus* amongst them. On the 20th of May, three specimens were caught by Customs peons, near the edge of the lake. Their legs and feet were much swollen and blistered and they could not fly. As the lake-bed at this time contained only a concentrated solution of brine, and the thermometer

ranged in the shade from 100 to 108 degrees, it is somewhat difficult to imagine what tempted them to remain in the lake-bed during the fierce heat of the sun, and what they found to eat there. The stomachs of six of those which I examined were filled with brownish sand mixed with a greenish watery substance. I could discover no traces of animal or vegetable life mixed with the contents of the stomachs. From the 21st to the 23rd of May, we had several severe storms accompanied by rain, and for a day or two after this, I observed large flocks of these birds flying about the lake. They again disappeared, but on the 13th of June, I observed four of them flying overhead, and the last time I observed them was on the 2nd of July, when I saw only one fly overhead. It is somewhat remarkable that none of these birds frequented the freshwater ponds or tanks which exist in the neighbourhood of the lake. All these were carefully watched, but no birds ever visited them. Altogether seven specimens of the bird were obtained, of which four were males. The dimensions of the six birds which were measured varied a good deal, as will be seen from the subjoined figures.

“*Dimensions.*—Male; length, 33 to 34 inches; tail from vent, 4·5 to 4·75 inches; expanse, 52 to 56·25 inches; wing, 13·5 to 13·75 inches; bill from gape to point straight, 3·5 to 3·6 inches; tarsus, 8·5 to 9·25 inches.

“Female; length, 30·25 to 30·5 inches; tail from vent, 4 to 4·5 inches; expanse, 50 to 52 inches; wing, 12·5 to 12·6 inches; bill from gape straight, 3·1 to 3·6 inches; tarsus, 7 to 8·4 inches.”

The first thing that strikes one is when and where do these birds breed. The first bird which I obtained, was caught late in December, or early in January. Mr. Adam saw specimens at the end of January, in February, March, April, May, June, and July, and Captain Fielden procured his specimens in July. They occur, as I have ascertained, in Goojerat and in Sindh during the early part of the hot weather, but only as stragglers. They are well known, however, to the fishermen. During my visit to Sindh I saw countless multitudes of Flamingoes, but only of the larger species, but the boatmen themselves volunteered the information that a much smaller bright-red bird of the same kind was seen occasionally in the hot weather. In the Nujjufgurh Jheel, near Delhi, my friend, Mr. Robert Blewitt, informs me that he has occasionally seen a single specimen in the spring. Lastly, I know of a single specimen having been killed in April out of a huge flock of the common ones in a salt lake in the salt range which lies between the Jhelum and the Indus, in the North-West Punjab. It would seem, therefore, that the birds remain with us from January to July; and my impression is, from the

extreme brilliancy of the plumage in July, and from other signs noticed on dissection by Mr. Adam, that they must breed in August. They do not, I think, breed in this country, certainly, I think I may say, neither in the Punjab, Rajpootana, or Sindh, and they have never yet been observed at all in either Oude, Bengal, the North-West, or Central Provinces, but it is still possible that they may breed in some of the salt lagoons, along the Western Coast, though my own conviction is that they nest in Africa.

What induces large flocks of these birds to visit the Sambhur Lake, which contains, as far as I have ever been able to discover, neither vegetable nor animal life (excepting one species of animalculi,) and more especially at a season when the brine is a thoroughly saturated solution, coating a stick dipped into it for a minute even with fine crystals of salt, is certainly a mystery. All through the cold season, and well into the beginning of the hot weather, this lake is thronged with the large flamingoes, waders, ducks, and gulls, (which latter fly off every morning about 9 o'clock, to drink at a small adjoining piece of fresh water,) which apparently feed on these animalculi; but when the brine reaches a certain stage of concentration, these give out their eggs and die, and then the lake is entirely deserted, except, as it would now appear, by *P. Minor*. The strangest thing of all perhaps is that they should remain there to burn and bruise their legs in the way described by Mr. Adam. It is curious, by the way, how often one shoots flamingoes with ulcerated, blistered, and sore legs. I remember that one bright genius (though I forget who he was) gravely asserted in print that this was due to the birds sitting on their nests with their legs hanging down in the water, and the barnacles attaching themselves to the same; but I confess I have never yet seen any satisfactory explanation of the fact.

To return to *P. Minor*. In winter plumage the head, neck, and the whole body above and below is a delicate pale rose color; on the back little more than white, tinged with rosy; the scapulars are almost white, with a pale rosy streak down the centre; the quills are black except the tertials which are like the scapulars, but slightly pinker; the wing coverts are pale rosy white, all the lesser and median, broadly centred at the tip, with a bright rather pale cerise, and the legs and feet are a bright rose pink. In the breeding season, the rosy tint is very much brighter, the throat is *bright* rose color, each of the feathers of the breast is broadly centred towards the tip with bright cerise. The feathers of the upper portion of the back are many of them similarly centred, and over the broad rosy white scapulars, a number of comparatively narrow, elongated, intensely cherry-colored

plumes (which reach as far down as the end of the closed wing) have been thrown out; the whole visible portion of the secondary, lesser, and median coverts have become the most brilliant cherry color, with only narrow white tips; and the lower tail coverts, flanks, and vent feathers are bright rosy, tinged with cherry color, the legs and feet too have become a deep but brilliant red; as for the bill, the basal portion is a deep vinous red, the tip black, and the intermediate portion bright crimson lake. In the cold weather, the bill I should mention is similar, but duller colored, the irides have not been noted, but Captain Fielden I see describes them as golden yellow, surrounded by an outer ring of orange scarlet.

I have owed at different times a good many hundred birds and eggs and much useful information to my friend Mr. Adam; but no more beautiful or valuable contribution than the six fine specimens of *P. Minor*, which he has added to my museum.

When on the subject of flamingoes, I may mention that some authors have considered our large Indian flamingoes a variety of the European *P. Antiquorum*, Temm. chiefly on account of slight differences in the shape of the bill. Mr. Gray *loc. cit.*, figures bills both of the European species and the supposed Indian variety; and remarks, "Fig. 2 represents the bill of a very old Indian example, which is considered to be a variety of the former, (*P. Antiquorum*,) but there are several slight differences in it. For instance, the angulation beneath the lower mandible appears stronger and its tip appears less swollen. A young specimen in the British Museum, from the Cape of Good Hope, has the bill of a very similar form, so much so, that I am induced to consider it the same as the Mediterranean species." Perhaps, Mediterranean is here a *lapsus pennæ*, for Indian, but be this as it may, my present conviction is that the bill he figures as the Indian variety is characteristic of the female. My grounds for this belief are first that all my Indian males have bills exactly corresponding with his figure of *Antiquorum*, while the females have the bill supposed to be characteristic of the Indian variety; and second, that the only European specimen I possess, a female, from Mr. Howard Saunders, Coto del Reg. 18-4-69, exhibits precisely the shape of bill figured by Mr. Gray, as that of a very old Indian example.

A. O. H.

A new ? *Polyplectron*.

I HAVE been shown some of the tail feathers of a *Polyplectron*, obtained in the Looshaie country, which I cannot identify as

pertaining to either the Asamese and Bhotan species, *Chinquis*, Tem (apud Blyth, Gould, Selater) or the Malayan *Bicalcaratum*, Linn. In the former species the freckling spots are greyish white on a greyish brown ground, in the latter they are hair-brown on a buff ground, and much larger than in the former. In the tail feathers before me they are about the same size as in *Chinquis*, but less closely set, and are pale buff on a hair-brown ground. The bird appears to have been smaller than either species. The *eyes* of the central tail feathers are elongated ovals (considerably narrower than in *Chinquis*) the major axis being parallel to the shaft. They are emerald green. In one of the lateral feathers, they are green, but with a purple reflection in certain lights.

Chinquis apud Blyth, &c., I believe also occurs in the country traversed by the Expedition, at any rate I have been shown a specimen said to have been procured in it, but these feathers will not at all agree with those of any of my specimens, from the Bhotan Dooars.

If really new, I would call the bird "*intermedius*," which it appears to be both as regards locality and to a certain extent in character of plumage between the two common species now known as *Bicalcaratum* and *Chinquis*; but my own conviction is that the bird to which these feathers belonged was the *real Chinquis* of Temminck, with whose plate in the pl. col. (539) they correspond exactly, and that the bird now commonly known as *Chinquis* must stand either as *Thibetanus*, of Briss. Linn. et Gmel., or, if the application of this name be too doubtful, as *Albo-Ocellatum* Cuv.

A. O. H.

Otocoris Elwesi. *Blanford.*

IN Mr. Blanford's Zoology of Sikhim, page 62 of the Asiatic Society's Journal for 1872, a supposed new species *Otocoris Elwesi* is described. I told Captain Elwes, soon after his return from Sikhim, that this supposed species was merely one of the forms assumed by *Otocoris Longirostris*, and I subsequently mentioned the fact, *in epist.*, to Mr. Blanford. I do not know whether Mr. Blanford is yet convinced of the fact; but I cannot doubt that he would be so, were he able to compare his specimen with a large series of *Longirostris* from different portions of the hills, and I think it may save trouble and confusion hereafter to put distinctly on record my conviction that *O. Elwesi*,

Blanford, must be relegated to the limbo of synonyms. My series of these birds is extensive. I have first Captain Elwes's specimen, one of the supposed *O. Elwesi* from the Kangra Lama Sikhim, and this I have compared with specimens from the northern portion of Cashmere, the Sutledge Valley beyond Chini, Ladak, the head of the Pangong Lake, Sanksu, the Khoosh Maidan, and the Valley of the Karakash.

I find that not one single one of the distinctions pointed out between *Elwesi* and *Longirostris* are reliable. *First*, shorter bill. The length of the bill in this species varies very greatly, first according to sex, and secondly, I think according to age. My largest *Longirostris* has a bill measured from forehead to tip a little exceeding 0·6 inch; my smallest, a female from Ladak, has the bill thus measured only 0·36 inch. The Kangra Lama specimen has the bill thus measured 0·4 inch, and I have two specimens, one from the head of the Pangong Lake, and the other from Sanksu, which not only exactly correspond in length of bill, but in all other essentials with the Kangra Lama specimens.

Second.—As to the legs being black instead of brown. This difference appears to be seasonal. A female killed in June in the Upper Sutledge Valley, and another killed in August 3rd, in the Karakash Valley, have the legs quite brown. A male killed in Cashmere, in the autumn, has them black, and so have all the October birds. So it is no wonder that the Kangra Lama bird, killed on the 4th October, should have them black, the fact being that between June and the end of September they appear to vary from fleshy brown to almost black.

Third.—The paler tints of the upper plumage and the purer white of the lower parts. These are entirely matters of age, sex, and season, and the Kangra Lama bird is not even quite as pale above or as pure a white below, as some of the Ladak birds.

Fourth.—Specimens of *O. Longirostris* in the Indian Museum are said to have no black frontal band at the base of the bill, while the black of the crown is not distinctly defined, but passes into the brown of the nape. This is equally true of some of my specimens; but then some again of my specimens have the black frontal band broad and well marked, and the black of the crown well defined, in fact much better defined than in Captain Elwes's specimen. I cannot exactly explain the changes, but it is quite clear from examining a series that the bird passes gradually from a no black-frontal band to a broad black-frontal band stage, and the Kangra Lama specimen that I possess is only half way between these two extremes.

Wolf's figure of this species in the Pro. Zol. Soc. 1855, p. 215, is in the intermediate stage, with the black frontal band

just beginning to appear, and it is in the somewhat darker stage often observable; in other respects it is pretty correct, and corresponds exactly with some specimens I possess. It was probably killed, I should say, in July, as the yellow at the base of the bill so prominently shewn in the drawing, disappears in the autumn, and as it does so, the black frontal band develops, and the legs turn from brown to black.

This species is so excessively variable in size and appearance, that without a good series to examine, it is difficult to understand it. The biggest birds are nearly 9 inches in length; the smallest, less than 7 inches; the wings vary from 4.25 to 5.25 inches; the variation of the bills I have already noted, while the hind claw varies from 0.3 to very nearly 0.6 inch; but big and little birds come from all localities and intermediate sizes occur, so that for my part I entertain no sort of doubt that, despite variation in size and plumage, all are referable to one and the same species, which peoples, at any rate from Afghanistan to Bhutan, all the dreary Himalayan wastes lying between 12,000 and 17,000 feet in height, whenever and wherever a little moss and a trickling stream is to be found. I may here note that Mr. Blyth was mistaken (*Ibis*, 1867, p. 47,) in saying that he had received two pairs of this species from Dr. Jerdon, *procured in the desert country north-west of Delhi*. This species never descends any where near the plains, and Dr. Jerdon's specimens, of which he gave me one, which I still have, were obtained high up in Cashmere.

A. O. H.

The Skylarks of India.

OUR Indian Skylarks appear to me to deserve more careful study than has yet been apparently bestowed upon them. Most of all, a really large collection of specimens made in all parts of India, with the sexes and dates on which they were procured duly recorded, is a desideratum; and I should feel very much obliged to any of my numerous correspondents who would, during the next year, endeavour to procure me good series in their immediate neighbourhood. Until two or three hundred specimens are brought together in one museum, and carefully collated, I think it will be impossible to come to any certain conclusions in regard to this group. At present, so far as my own limited collection enables me to judge, I am disposed to believe that we have only two good *species*.

These two species I should at present identify as *Alauda Arvensis*, Linnæus, and *Alauda Malabarica*, Scop.

Our specimens of *Alauda Arvensis* do not belong precisely to the race to which we Englishmen usually allot the name of *Arvensis*. On the contrary, the wing is slightly smaller, the hind claw and tarsus as well as the bill slightly shorter, and the lores and the fore-part of the face are a somewhat purer white. At least such is the case with my specimens. This species, so far as my observations go, occurs only in the Himalayas and as a winter visitant to the plains of the North-Western Punjab. It would appear to correspond closely, if not exactly, with that race of the European skylark which Pastor Brehm separated as *Alauda Agrestis*. This too is the bird which Hodgson designated *Dulcivox*, and here I may note that it is a great mistake to identify his *Dulcivox* with either *Triborhyncha* or *Orientalis* vel *Leipus*. Hodgson's original drawings clearly shew that *Dulcivox* was a larger bird, with a wing of from 4 to 4·5 inches, the Himalayan representative, in fact, of *Arvensis*; and I have a bird killed at Murdan in December 1870, absolutely identical in every respect with his beautiful figure (now in my custody) of *Alauda Dulcivox*. On the other hand, his two drawings of *Triborhyncha* and one of *Orientalis* vel *Leipus*, show that both these species, or races, or perhaps different sexes of the same race belonged to the smaller skylark (all the different races of which I, for the present, include under *Malabarica*) the wings of which vary from 3·3 to 3·8 inches.

Of course our larger Himalayan lark, *Arvensis* as I should call it, but *Agrestis* or *Dulcivox*, if any one considers it deserving of specific separation, varies somewhat in length of hind claw and bill, a great deal in length of wing according to sex and still more in plumage, according to both sex and season; but in all these matters, exactly parallel variations are to be met with in the series of the true English *Arvensis* that I possess, and whether we can agree to call our Indian bird *Arvensis* or *Dulcivox*, there is only, I think, one race of the larger Indian skylark. A larger series of specimens however of this species is necessary before I could pronounce with any great certainty on this point.

When we come to *Malabaricus*, however, numerous races appear to exist. There is first the true *Gulgula* of the plains of the North-Western Provinces, Oudh, Bundelkund, and Rajpootana; second, the darker typical *Malabaricus* from the Neilgherries and also from Lower and Eastern Bengal; third, a race intermediate between these from the hilly, southern, and eastern portions of the Central Provinces; fourth, the true *Triborhyncha* from the Himalayas, from Murree to Sikhim, ranging up to heights of

eight and ten thousand feet, and fifth, what I take to be the *Leiopus* type from Ladak, Thibet, and the higher Himalayan plateau generally.

Typical specimens of each of these races may be so selected as to make it apparently indisputable, that each represents a distinct species; but even the small series, some five or six of each, that I possess seems to shew that no hard and fast line can be drawn between any of them; and it is quite certain that no satisfactory separation can ever be effected, until a really large series of each of these five races (and any others that further investigation may bring to light) is brought together in one collection and most carefully collated.

Of these five races the most distinct appears to be the skylark of the high Himalayan plateau (which however in the cold season may, and doubtless does, descend into the lower hills and valleys) which I identify with Hodgson's *Orientalis* vel *Leiopus*. This race has the whole lower breast and abdomen perfectly pure snowy white, and this I have observed in none of the other races. The bill is slender like the true *Gulgula*; but still more sharply pointed; the wings, too, are larger on an average than in any other of the four races, and in the males vary apparently from 3·8 to 4·0 inches. I possess no ascertained female. This race cannot be mistaken (though it approximates to it in length of wing) for *Dulcivox*, although the lower parts in that species, too, are at times pure white. It is altogether a smaller and less bulky bird, and has a comparatively much longer and markedly more slender bill.

Next to this comes the true *Gulgula*, which, in the summer at any rate, extends to Cashmere and other comparatively low hill valleys, where, as well as in the plains, it breeds freely. I have specimens of this race from Etawah, Rohtuck, the Sambhur Lake, Bhawalpoor, and Srinuggur, Cashmere. The bill in this race closely resembles that of *Leiopus*, and is considerably slenderer than those of any of the other three races. The upper surface is much paler than in any of the other four, and the abdomen is pale rufous white. The wings of the male in this race seem to vary from about 3·7 to 3·8 inches.

The typical *Malabaricus* has a considerably stouter bill than either of the preceding; the wings are about the same size as those of *Gulgula*, but the whole upper surface is conspicuously darker, a mixture of deep brown and bright rufous buff, such as is not met with even in freshly moulted specimens of *Gulgula*, and the lower surface, too, is more markedly tinged with rufous.

The nameless race from Saugor, Raipoor, &c., appears to be

intermediate between the two last forms. The bill and general tone of coloring approaches most closely to *Malabaricus*, but in both respects the bird seems intermediate, and the wings of the males appear to vary from 3·4 to 3·6 inches.

Lastly, what I take to be the true *Triborhyncha* has the shortest and stumpiest bill of all, and in summer plumage is darker and more rufous, and in winter plumage greyer, and duskier than any of the others. I have a single specimen of this bird from the salt range in winter, showing that some specimens, at any rate in the cold season, straggle outside the Himalayas; the wings of the males seem to vary from 3·8 to 4 inches.

I have said nothing about the length of the hind claws, because these appear to vary very much according to the individuals and not according to the race. In one individual of *Gulgula* the hind claw alone measures just over 0·75 of an inch; in another, it is only 0·45 of an inch; and similar, though not such striking variations are observable in the few specimens that I possess of each of the other races.

Whether any or all of these races may ultimately prove deserving of specific separation, I cannot pretend to say; but I would earnestly invite the attention of brother ornithologists to this most interesting though troublesome little group, in the hopes that by a combined effort we may in a year or two be in a position to arrive at a more definite conclusion in regard to it.

A. O. H.

Fringilauda Nemoricola. Hodgson. *Fringilauda*
Sordida. Stol.

IN the 37th volume of the Journal of the Asiatic Society, Dr. F. Stoliczka characterized under the name of *Sordida*, a supposed new species of Hodgson's genus *Fringilauda*. He remarked, that "*F. Nemoricola* was only a winter visitant to the lesser ranges of the North-Western Himalayas; but that he had often observed it during the summer in the south-western parts of Thibet, and in the north of Cashmere"; he further mentioned, that another species, (his *Sordida*) was procured by him near the Baralatsu Pass, in North Lahoul, and near Padam, and that during the previous winter he had procured numerous specimens from the neighbourhood of Kotegurh.

In regard to this new species he remarked: "The following description is taken from these Kotegurh specimens.

"*Male in Winter.*—Forehead dusky brown, all the feathers margined pale; top of head and ear-coverts, uniform rufous brown; nape and neck, ashy brown; back, dark brown; the feathers margined pale rufous; rump, pure ashy; upper tail coverts, blackish, tipped and margined white; wings and tail, dusky, the secondaries being narrowly, the tertiaries more broadly edged pale brown, and tipped whitish; wing coverts brownish-dusky in the centre, tipped whitish, and forming two conspicuous bands; all the tail feathers are margined pale; below, uniform dull ashy, albescent on the vent; lower tail coverts dusky, broadly margined, and tipped with pure white. The *female* has the entire top of the head light brown, the feathers being dusky centrally; the ear-coverts are pale; otherwise it is colored like the male.

"The specimens which I procured in summer, are more uniform dusky brown above, having all the pale edgings of the feathers much less distinct, and the whitish bands on the wing coverts scarcely conspicuous.

"Length of wing, $3\frac{7}{8}$ inches; tail, $2\frac{7}{8}$ inches; bill, dusky brown above, pale on the base and below; legs, greyish brown; irides, fleshy brown.

"The form of the bill is scarcely different from that of typical *Montifringilla*, but the hind claw is remarkably longer, and like all the other claws very slender, and more similar to those of *Fringilanda* than to those of the former genus.

"I have not succeeded in identifying this species, nor have I seen specimens of it in any of the European museums, though it is comparatively a common bird."

Subsequently, I procured two specimens labelled *Sordida* by Dr. Stoliczka, and comparing these with numerous other specimens from different parts of the North-Western Himalayas, arrived at the conclusion, as I believe several other ornithologists did, that *Sordida* was not a good species.

Having now compared a very large series of these birds, namely, sixty-eight from Simla, Kotegurh, Kotekhaie, Kooloo, Bussahir, the Valley of the Sutledge from Chini to Rampoor, &c., with sixteen procured in the immediate neighbourhood of Darjeeling, I have come to the conclusion that, though not a good species in the sense that Dr. Stoliczka understood it, *Sordida* is yet the first name applied to a species not hitherto discriminated, but for all that distinct from Hodgson's *Nemoricola*. The true *Nemoricola* does not, to the best of my belief, occur at all in the south-western parts of Thibet, or to the north of Cashmere; the specimens to which Dr. Stoliczka assigned the name as there occurring being merely other stages of plumage of his *Sordida*,

and certainly this is the case in regard to his supposed *Nemoricola* which he describes as being a winter visitant to the lesser ranges. I have seen positively hundreds of specimens collected during the winter in the lesser ranges of the North-Western Himalayas, and one and all of them belonged to the species, which must now be known as *Sordida*.

The true *Nemoricola* is the one obtained in the neighbourhood of Darjeeling. This I have ascertained by a comparison of the Darjeeling specimens with Hodgson's original drawings now (owing to his great kindness, which I cannot sufficiently acknowledge) in my custody.

The Eastern and the Western birds are very similar in general appearance, but the true *Nemoricola* is somewhat the larger, the wings varying from 3.7 to 4.1 inches in the male, and 3.62 to 3.92 inches in the female, against 3.7 to 3.9 inches in the male, and 3.6 to 3.8 inches in the female of *Sordida*. Then although the plumage in both species is excessively variable, according to age and season, the eastern form is as a rule darker and brighter, and the wing bars formed by the tippings of the median and greater coverts, are pure white or very nearly so, and as a rule very conspicuous, while these bars in *Sordida* are, almost without exception, a dull pale buff or fulvous white, and in many specimens very ill-marked. The feet of the two species do not differ perceptibly, though perhaps the claws in *Sordida* are a hair's breadth the longest.

The bills in both species vary a good deal, but I cannot discover any constant difference in this respect between the two.

There is, however, one trifling but constant difference which, independent of the size and the wing bars, enables us to separate *Nemoricola* from *Sordida* at a glance. The axillaries in *Sordida* (and I write now with 68 specimens before me, killed at various seasons of the year, in all the different localities above enumerated) are invariably either pure white or *slightly* greyish or brownish white. In the true *Nemoricola*, on the other hand, the axillaries are invariably more or less strongly tinged with yellow. In some good specimens in which the axillaries have been preserved intact, a pure dull yellow; in some, rather of a dull pale orange; but in no single specimen is the color not distinctly traceable, although of course it varies both in intensity and extent in different individuals.

This constant though slight difference, taken in connection with the differences in size, in tone of coloring, and in the wing bars, is, I think, quite sufficient to justify specific separation, and warrant our admission of *Fringilanda Sordida*, Stoliczka, into our Avifauna.

A. O. H.

Contributions to the Ornithology of India.—Sindh, No. I.

THERE is certainly no province in India proper, in regard to the Avifauna of which so little has hitherto been certainly known, as that which embraces the delta of the Indus, and has from a far distant past borne the name of that mighty, but hopelessly mud-laden, river.

For many successive years I had been toiling unremittingly on the official tread-mill, on which so many of our best men, year by year, wear out alike mind and body, with alas! such apparently insignificant results, when last year, warned by failing health and energies, I determined to have a holiday for once, and to occupy that respite from red-tape, office boxes, and that horrible, though chronic, state in which we all live of being perpetually "directed by His Excellency the Governor General in Council to remark, state, invite, &c.," to a through investigation into the state of Bird Society in Sindh.

My much-loved master and friend, our late lamented Viceroy,—whom I should otherwise have accompanied on the ill-fated trip that cost him his life and India more than she yet fully realizes,—with that unfailing kindness which enhaloed all his dealings with his fellow-men, made every thing easy for me, and I was enabled to spend my whole leave in Sindh, to run up the Mekran Coast to Gwader, and cross over to Muscat, and thus add another important link to the ornithological chain that binds together Asia, Africa, and Europe.

In future papers, I propose to give a brief account of our trip from Jheelum to Muscat, and a detailed list of all the birds observed, with such notes as are likely to prove useful to Indian ornithologists. In this present number I must content myself with a brief notice of the results of the expedition.

I brought home altogether about 1,200 specimens, representing about 250 species. Of these but few, (*PTIONOPROGNE PALLIDA*, *SAXICOLA ALBONIGER*, *BLANDFORDIUS STRIATULUS*, and *PUFFINUS PERSICUS*,*) are, to the best of my belief, new to science, but no less than 18 other species:

ALCEDO ISPIDA. Linn.

SAXICOLA MONACHA. Rüpp. (*S. Gracilis*, Licht.)

CETTIA SERICEA. Natt. (*Cetti*, Marm.)

BUCANETES GITHAGINEUS. Licht.

COLUMBA LIVIA. Briss. Bp.

* And possibly two others, of which more hereafter.

PTEROCLES LICHTENSTEINII. Tem.

„ SENEGALLUS. Linn. (*P. Guttatus. Licht.*)

„ CORONATUS. Linn.

LIMOSA RUF. BRISS. (*L. Lapponica. Linn.*)

TRINGA CRASSIROSTRIS. Schlegel. (*S. Magnus. Gould.*)

PORZANA MINUTA. Pallas. (*P. Pusillus. Gmelin.*)

QUERQUEDULA ANGUSTIROSTRIS. Menetries. (*Marmorata. Tem.*)

PODICEPS NIGRICOLLIS. Sundevall.

STERCORARIUS PARASITICUS. Linn. (*Richardsoni. Audubon.*)

LARUS OCCIDENTALIS. Audubon. (*L. Borealis. Brandt.*)

„ LAMBRUSCHINI. Bon. (*L. Tenuirostris. Tem.*)

„ HEMPRICHII. Bon. (*L. Crassirostris. Licht.*)

and THALASSEUS CANTIACUS. Gmelin. (*Acyflavida. Cabot.*)

are entirely new to our Avifauna. Besides these, many other species, not included in the late Dr. Jerdon's great work on the Birds of India, but subsequently recorded by myself or others as occurring within our limits, such as HALIETUS ALBICILLA, Lin; SAXICOLA KINGI, nobis; LUSCINIOLA MELANOPOGON, Tem; PHYLLOSCOPUS NEGLECTUS, nobis; SYLVIA DELICATULA, Hartlaub; MELIZOPHILUS STRIATUS, Brookes; ANTHUS SPINOLETTA, Lin; ALAUDULA ADAMSI, nobis; PYRRHULAUDA AFFINIS, Blyth; LARUS ARGENTATUS, Brünnich; and PELECANUS CRISPUS, Bruch, rewarded our labours, to say nothing of species hitherto rare in India, *Cypselus Apus*, Linn.; *Laticilla Burnesi*, Blyth; *Alaemon Desertorum*, Stanley, *Calidris Arenaria*, Linn; *Phalaropus Fulicarius*, Linn; *Anser Erythropus*, Linn., nec Gmelin; and *Phaeton Aethereus*, Linn. If to the names thus enumerated I add that at one season *Merops Aegyptius*, Forskäl jun., swarms throughout the country, that *Lanius Isabellinus*, H. and E., (with the white wing bar) and *L. Arenarius*, Blyth, (which are both stages of the same species, as I shall show hereafter) are the predominant shrikes of Sindh; that *Saxicola Deserti*, Rüpp, (with which *S. Atrogularis*, Blyth, is identical) and *S. Isabellina*, Rüpp, are the wheatears; *Ammomanes Lusitania*, Gm., and *Galerida Cristata*, Linn, together with *A. Desertorum*, Stanley, the larks; *Cursorius Gallicus*, Gm., the only courser, and *Demigretta Gularis*, Bosc, the sea-side heron, the strongly marked European and North-East African cum Arabian character of the Sindh Avifauna, cannot fail to strike every ornithologist.

As a matter of fact, the more habitable portion of Sindh is a mere oasis in the desert, a long and comparatively narrow tract of country, yearly fertilized by the inundation of the Indus, set in a broad frame of shifting sand-heaps or bare stony mountains.

Eastward Sindh is bounded by some of the most desert portions of Bhawalpoor, Jeysulmere, and Balmere, (a dependency

of Jodhpoor,) and the eastern portions of Sindh itself, for from ten to sixty miles within the frontier, are desert wastes. Northwards and westwards, rugged ranges of inhospitable stone heaps, varying in height from 2,000 to 5,000 feet, where inhabitants, animal life, vegetation and water are alike, save in exceptional localities, altogether wanting, hem in the province, and divide it from the territories of the many Belooch clans that compose the State of Khelat. Inside this boundary stretches every where, for a breadth of from ten to fifty miles, a belt of waste, only at very long intervals, brightened by villages, "*rari nantes in gurgite vasto*," and their surrounding straggling patches of cultivation, such as it is. About the middle of Sindh, below Sehwan, offshoots of the bounding ranges of rocky hills run out at right angles to the main ridges, right down to the bank of the Indus, and lower down almost the whole of the country west of the Indus is more or less pure desert, broken up by low ridges of absolutely naked rocks. Southward the sea bounds the province.

To the birds, therefore, of the comparatively fertile plains and uplands of India, there are but two routes left into Sindh, the one by the valley of the Indus, where that river, with a narrow strip of comparatively well-tilled country on either bank, enters the province at its extreme north-eastern corner; the other on the south, where the western point of Cutch (the easternmost portions of which abut on Guzerat) all but touches the Shahbunder district of Sindh. On the other hand, the hills, with their broad fringe of desert, that bound the province north and west, are precisely similar in character and appearance to the Mekran Coast (as far, at any rate, as I explored it, *viz.*, to Gwader,) to the country about Muscat, about Aden, and along such parts of the north-east coast of the Red Sea and the Peninsula of Sinai as I have visited.

It is therefore in no way surprising that, on the one hand, many of the land birds most characteristic of the Indian Fauna, such as *Vultur Calvus*, Scop.; *Gyps Indicus*, Scop.; *Gyps Bengalensis*, Lath.; *Falco Peregrinator*, Sund.; *Hieraetus Pennatus*, Gmel.; *Spilornis Checla*, Daud.; *Pernis cristata*, Cuv., *Bulaca Ocellata*, Lesson.; *Ninox Scutellatus*, Raffl.; *Ptionoprogne concolor*, Sykes; *Merops Philippensis*, Lin.; *Alcedo Bengalensis*, Gmel.; *Palæornis Purpureus*,* Müll.; *Xantholæma Hæmacephala*, Müll.; (= *Indicus*, Latham) ; *Hierococcyx Varius*, Vahl.; *Oxylophus Jacobinus*, Bodd. (= *Coccytes Melanoleucus*, Gm.) *Sitta Castaneiventris*,

* Mr. Gray gives this from India generally, = *Rosa*, Bodd; while he gives *Bengalensis*, Gm., from Nepal. Are these really two species? This requires re-investigation.

Franklin ; *Dicrurus Cæruleus*, Müll.(=*Cærulescens*, Lath ;) *Pycnonotus Pygmaeus*, Hodgson ; or *Chrysorrhoides*, Lafr.(=Gray says *Pusillus*, Blyth ;) *Iora Zeylanica*, Gmel.; *Copsychus Saularis*, Linn.; *Cercomela Fæsa*, Blyth ; *Prinia Socialis*, Sykes or *Stewarti*, Blyth ; *Dryomorphus Inornatus*, Sykes ; *Iduna Caligata*, Licht, (=according to Gray, *Phyllopneuste Rama*, Sykes ;) *Motacilla Maderaspatana*, Gmel., *Corydalla Rufula*, Vieill.; *Corvus Culmenatus*, Sykes ; *Sturnopaster Contra*, Linn.; *Melophus Melanicterus*, Lath.; all the *Mirafra*s, all the *Alandas* of the *Gulgula* type ; the green pigeons, pea, spur, and jungle fowl, and many others of our most familiar forms, should be either wholly wanting, or met with only as mere stragglers ; or that, on the other hand, *Sylvia Delicatula*, *Hartlaub*, no less than six species of sand grouse, the desert-lark, the desert bulfinch, and *Saxicola Monacha* should occur, and some of them abound.

Sindh, however, has another aspect than that which we have been considering. Within what I may call the delta of the Indus—the river-fertilized portions of the province—huge inland broads and lakes (locally called “*Dhunds*”) abound. Again, from the easternmost mouth of the Indus to the Kurrachee Harbour, nearly the whole coast is a net-work of channels, backwaters, and sand and mud banks, more or less laid bare, by each receding tide, and hence, as might have been expected, Sindh, both inland and on the sea coast, is a perfect paradise for aquatic birds. Nowhere in India have I yet seen such multitudes of water-fowl, ducks, pelicans, flamingoes, herons, shore-plovers, scolopacidæ, gulls, terns, *et id omne genus*. You ride for a dozen miles through a bare waste without meeting a single man or beast, or seeing above forty or fifty birds in the whole distance ; a few desert larks, some Isabelline shrikes, a few sand grouse (*Senegallus*) *Saxicola Picata* and *Isabellina* ; and perhaps, as you pass a single lone field of mustard, (that seems to belong to no one, and either to have wandered from civilized life, and lost its way in the desert or to have grown promiscuously on its own account) a small flock of desert bulfinch ; and then, suddenly, as you rise some swelling sand dune, at your very feet lies a grand rush-studded, more or less tamarisk-fringed and be-islanded sheet of water—two three or even ten thousand acres in extent perhaps—with one or more hamlets overlooking it, teeming from end to end with myriads of aquatic birds, a sight to gladden the heart alike of ornithologist and sportsman.

The contrasts presented by this small province are most striking. Stick to the central inundation-subject tracts, where broads and cultivation divide with canals and irrigation channels the length and breadth of the land, and, at any rate if your

trip be made in the cold season, you will be ready, specially if either ornithologist or sportsman, to aver that Sindh is the pleasantest of all our Indian possessions; a climate that is simply perfection; cool, dry to a degree, bracing; waving fields, picturesque looking villages, beautiful lakes or lakelets in every march; the sun always bright, the sky ever blue and cloudless; lovely purple hills, closing every landscape in the far distance, and such wild-fowl and snipe (and in places black partridge) shooting! But, stray outside the limits of these tracts, above all, wander a little amongst these "lovely purple hills" to which "distance," and only a very considerable distance, can "lend enchantment," and you must either be a geologist or more than mortal, if you do not after a week or so conclude that Sindh is the most "God-forgotten-hole" on the face of the globe.

When I visited these same hills, not a drop of rain had fallen on them for more than two years. There was no grass, no water, no birds except a Lammergeyer or two, *Ammomanes Lusitania*, and here and there a few large black and white wheatears; no animals, no men even, no nothing in fact, but bare, blackened, rugged piles of rock, red-hot at noon-tide, and pretty well freezing before dawn.

As for the Mekran Coast, as far as Gwader, and the immediate neighbourhood of Muscat and the Coast on either side of it for five or six miles (which were the limits of my explorations,) I am bound to say that though not quite so desolate, and of course better populated, the former is much on a par with the Sindh and Khelat hills, the latter with Aden. In the cold season they are bearable, and Muscat especially, picturesque enough, but in the hot weather, they certainly do not commend themselves to me as desirable residences.

Hereafter, in dealing with each species observed in Sindh, I shall always notice those that were also procured or obtained along the Mekran Coast or at Muscat, but it may be useful to mention at once the very few species of land birds that we observed in these localities.

In both the Neophron was common near human habitations, and *Cypselus Apus*, and *Affinis*, *Lanius Arenarius vel Isabellinus*, *Ammomanes Lusitania*, *Petrocosyphus Cyaneus*, and *Passer Indicus* were obtained. Besides these, at Muscat I procured *Turtur Cambayensis*, and saw *Alcedo Bengalensis* (not *Ispida*), *Falco Peregrinus*, and a raven with a particularly long and rounded tail. Along the Mekran Coast, we further procured *Upupa Epops*, *Cichloides Atrogularis*, *Saxicola Deserti*, *Monacha*, and *Alboniger*, *Ruticilla Rufiventris*, *Callandrella Brachydactyla*, *Cyanecula Suecica*, *Otocompsa Leucotis*, *Ammoperdix Bonhami*, *Corvus Lau-*

rencei (the common Punjaub raven, *vide* "Labore to Yarkand") and saw *Haliaetus Albicilla* and one or two pairs only of an enormous black eagle that could be nothing but *Aquila Chrysaetus*, this latter being, by the way, the only single species, whether of land or water bird, procured or seen either along the Mekran Coast or at Muscat, which we did not also obtain or see in or along the coasts of Sindh.

A. O. H.

(*To be continued.*)

FIRST DRAFT
OF A
CONSPECTUS OF THE AVIFAUNA
OF
INDIA AND ITS DEPENDENCIES.

I HAVE been so repeatedly urged to publish a complete catalogue of the Birds of India, so far as these are known to me, as also of the specimens that are contained in my museum, that, despite the vast labour it will involve and the little leisure I have available, I have commenced the work.

In this catalogue I propose to include every species, so far as this is known to me, which has been observed in any part of India, including Cashmere, Nepaul, Sikhim, and other Hill States, Ladak and Yarkand, Arracan, Burmah, and the Tenasserim Provinces, Assam and Cachar, Ceylon, the Andamans, and the Nicobars.

In this present work, which only pretends to be a first draft, I cannot undertake to work out the synonymy of the various species, about 1,500 in number. Each will be entered under the name that, as at present informed, (and that is very imperfectly) has, I believe, priority. Where Dr. Jerdon has given the species under a different name, I shall enter that also and, in some cases, in which the synonymy has been already carefully worked out by others (*e. g.*, by Sharp in the *Alcedinidæ*, or in the *Birds of Europe*, Elliot in the *Pittidæ Phasianidæ*, *Tetraonidæ*, Gould in the *Birds of Asia*, the Marshalls in the *Barbets*, Lord Walden in the *Sunbirds*, &c.), I shall add some of the more important synonymes.

I shall retain Dr. Jerdon's arrangement and numbers, introducing the birds not included by him, as *bis*, *ter*, &c., of one of

his numbers to which the species is allied. I shall also add, for convenience of reference, one serial number for the whole catalogue. I shall indicate, under each species, all specimens (adult or immature, male or female, distinguishing these) procured and eggs obtained within our limits,* contained in my museum, with locality, and, where this seems likely to be useful, the length of wing of each, and the other dimensions of a certain number of specimens that have been carefully measured in the flesh.

I shall give descriptions and measurements, so far as I have been able to secure these, of all species not included in Jerdon's *Birds of India*.

I shall give the same of some species which are so included, where this, for any reason, seems likely to be useful.

I shall, in many cases, give notes, having, for their object the identification of, or the discrimination of, nearly allied species.

I shall give the whole of the information I possess, as to the nidification of each species within our limits, with descriptions and dimensions of eggs and nests, seasons of breeding, &c.; but I must note that the species of which I can furnish all these particulars will fall short of 400.

I do not propose, in this "first draft," except in very exceptional cases, to discuss habits (except as regards nidification), affinities (except where absolutely necessary for the discrimination of our own species), or habitat (except so far as may be necessary to justify the inclusion of a species in our Avifauna). These subjects, together with a thorough elucidation of synonymy, must lie over until (if such a time should ever come) I have leisure really to devote myself to the work of fusing the great mass of materials I have accumulated.

Undertaken as this work is, amidst the pressure of heavy and responsible public duties, disposed of, as it must be, in a great hurry and, worst of all, performed as it will be by one so little competent as myself, it will, it is needless to say, teem with errors of greater or less gravity. Still, I am assured that, notwithstanding this serious drawback, this catalogue will be of great use, not only to the numerous gentlemen who so kindly collect for me, but also to others interested in Indian Ornithology, and that it will serve as a sort of basis upon which hereafter some abler ornithologist, less occupied with other matters than myself, may produce some more worthy record of our Indian Avifauna.

A. O. H.

* I estimate these at about 12,000 of the former and 10,000 of the latter, after excluding as I am now doing, several thousand specimens, in excess of what are required for the fullest illustration of the species.

VOL. I.

NOS. 2, 3, & 4.

STRAY

FEATHERS,

A

Journal of Ornithology

FOR

INDIA AND ITS DEPENDENCIES.

EDITED BY

ALLAN HUME.

FEBRUARY, 1873.

WE took the earliest opportunity of warning our subscribers that "STRAY FEATHERS" could not reasonably be expected to be very regular in their appearance or very uniform in their size, and it is therefore, perhaps, unnecessary to apologize for this very stout treble number; still it behoves us to explain that the whole of the rest of the Editor's Notes on the Ornithology of Sindh are now presented, *en masse*, in the present number instead of appearing as was originally intended in four successive parts, because there seems just now a prospect of attention being locally paid to the subject. In the course of another six or eight months, any or all of those now interested in the work, *may* have been (and some certainly *will* be) called by duty elsewhere, and it is therefore thought best to seize an opportunity that may not recur for years and afford to local observers, at once, such little aid as these papers may be able to furnish.

A. O. H.

STRAY FEATHERS.

Vol. I.] FEBRUARY, 1873. [Nos. 2 & 3.

List of Birds known to occur in the Andaman and Nicobar Islands,
by V. BALL, B. A., *Geological Survey of India.*

THE following is an attempt to present a complete list of all the species of birds which are at present known to occur in the Andaman and Nicobar Islands. The association of the two faunas in one list is to be defended rather upon political than zoological grounds; for, if we except a few species which occur in both groups of islands, the avifaunas may be regarded as distinct. The Nicobarian avifauna has a Malayan facies, while that of the Andamans is decidedly Indian.

Of the 133 species included in the following list, 106 occur in the Andamans, and 51 in the Nicobars. Such of them as are to be found in Dr. Jerdon's "Birds of India" are not here described; but of all others the original descriptions are given in full, together with any observations, measurements, &c., which may have been subsequently recorded.

Many of the species are, I am fully aware, susceptible of more critical treatment than they have received at my hands. But, whatever faults it may contain, I am inclined to believe that the publication of this paper will be of some service, as bringing together a number of original descriptions which, being scattered through various publications, are not readily accessible.

The principal contributors to our knowledge of the ornithology of the Andamans and Nicobars are—

E. BLYTH, *Journal*, A. S. B., Vols. xiv to xix;—*Ibis*, 1863 and 1868; and Appendix to MOUNTAIN'S Adventures and Researches. Colonel TYTLER, *Journal*, A. S. B., Vol. xxxiii, and Proc., A. S. B., 1865.

Captain BEAUVAN, *Ibis*. N. S., II, 1866, and N. S., III, 1867.

Viscount WALDEN, Proc. Zool. Soc., 1866.

Herr v. Pelzeln, Reise der Novara, Vögel.

FALCONIDÆ.

1*—(8).†—**Falco peregrinus**, Gmel.

Andamans.—*Ibis*, N. S., III, 1867, p. 315.

Seen by Colonel Tytler.

F. peregrinator was obtained by Sundevall between Ceylon and Sumatra, about 70 miles from the Nicobar Islands.

2—(23 bis).—**Micronisus soloensis**, Horsf. = ? *Falco cuculoides*, Tem.

Nicobars.—Pelz., *Reise der Novara*, Vögel, p. 112.

“ABOVE leaden-ashy; below dull ferruginous; quills black; coverts white at base; tail-feathers, excepting the outermost, barred with black, underneath white.”—Horsf., *Lin. Soc. Trans.*, XIII, p. 137.

3—(34 bis).—**Spizaetus Andamanensis**, Tytler.

Andamans.—Tytler, *J. A. S. B.*, 1865, p. 112; *T. and B.*, *Ibis*, N. S., III, 1867, p. 315.

“BILL and claws slaty-horn color; legs feathered to the toes, which latter are of a dirty yellow color. The tail has usually seven transverse bars of darker hue than the rest. The general color of the bird is creamy-white, somewhat inclining to rufous on the head, upper tail-coverts, and interior of thighs. The wings, tail, and lower nape are brown. The head in some specimens is slightly marked with longitudinal brown striæ, and the under wing-coverts of all spotted with the same.”

“This species will probably be classed next to *Spizaetus*† *limnaetus* of Lower Bengal and the Burmese countries, from which, however, it differs conspicuously in the color of the plumage.”

♂ Length 25·5; wing 13·5; tarsus 3·5; tail 10·25 inches.

♀ „ 24·5; „ 13·5; „ 3·5; „ 10·25 „

♀ „ 23·12; „ 14; „ 3·75; „ 10·25 „

For full description of this species, see Mr. Hume's *Scrap Book*, p. 203.

4—(39 bis).—**Spilornis Bacha**, Daud.; *F. bido*, Horsf.?; *S. spilogaster*, Blyth; *H. Elgini*, Tytler.

Andamans.—Tytler, *J. A. S. B.*, XXXII, p. 87; *Blyth*, *Ibis*, N. S., II, 1866, p. 243; *T. and B.*, *Ibis*, N. S., II, 1867, p. 314; *Blyth*, *Ibis*, N. S., IV, 1868, p. 131; *Jerdon*, *Ibis*, 3rd series, I, 1871, p. 335; *Ball*, *J. A. S. B.*, XLI, 1872, p. 275.

For full description of this species, reference must also be made to Mr. Hume's *Scrap Book*, I, p. 230.

* These numbers are continuous throughout the paper and indicate the number of species recorded from the islands.

† Numbers in parenthesis refer to Dr. Jerdon's 'Birds of India' and Mr. Hume's Catalogue.

‡ *S. caligatus*, Raffl.—Ed.

- 5—(41).—**Polioæetus ichthyaetus**, *Horsf. Lin. Trans., XIII*, p. 136; *Zool. Res. in Java*, p. 34.

Andamans.—Seen by Colonel Tytler. *Ibis*, N. S., III, 1867, p. 316.

- 6—(43).—**Haliæetus leucogaster**, *Gmel.*; *Blagrus dimidiatus*, *Raffles*.

Andamans and Narcondam.—T. and B., *Ibis*, N. S., III, 1867, p. 315; *Ball, J. A. S. B., XLI*, 1872, p. 276.

Nicobars.—Blyth, *J. A. S. B., XV*, p. 369; *Mouat's App.*, p. 356; *Ball, J. A. S. B., XXXIX*, 1870, p. 30.

- 7—(56).—**Milvus Govinda**, *Sykes*.

Andamans.—T. and B., *Ibis*, N. S., III, 1867, p. 315.

STRIGIDÆ.

- 8—(65 bis).—**Syrnium seloputo**, *Horsf.*; *Strix pagodurum*, *Tem.*

Andamans.—T. and B., *Ibis*, N. S., III, 1867, p. 316.

Nicobars.—Blyth, *J. A. S. B., XV*, p. 369.

FOR description of this species, see *Scrap Book*, p. 358.

- 9—(74 bis).—**Ephialtes spilocephalus**, *Blyth?*

Andamans.—? (*E. Lempigi*), T. and B., *Ibis*, N. S., III, 1867, p. 136; *Ball, J. A. S. B., XLI*, 1872, Pt. II, p. 276.

“So far as it is possible to make out one of these difficult birds without a good series for comparison, the specimen of Andaman Scops before me appears to correspond most nearly with Blyth's description of *E. spilocephalus* (= *S. Malayanus*, Hay?), *J. A. S. B.*, XV, p. 8, and with a specimen of that species from Masuri in the old collection, No. 147, I, of Blyth's Cat.

“Mr. Hume only doubtfully refers *spilocephalus*, Blyth, to *gymnopodus*, Gray, so that for the present I think it safer to give Blyth's name. The bird certainly belongs to the *pennatus* type, as distinguished by Mr. Hume, though Colonel Tytler records *E. Lempigi* from the Andamans.

“Authorities are so divided as to the nomenclature to be adopted in reference to this genus, that, without attempting to discuss the question as to what species *spilocephalus* should be finally referred to, I shall confine myself to showing the points of resemblance between the Andaman bird and *spilocephalus*, Blyth, by the description of the former, which is as follows:—

“*Above*.—Rufous inclining to bay, each feather of the head, back of neck, scapulars, wing-coverts, back and rump with two fawn-colored spots edged with black. *Primaries*—first two not grown, fourth and fifth equal, five white spots on the outer webs.

Tail rufous brown, darker on the inner webs of the rectrices, with four white bands.

“*Beneath*.—Facial disk fawn colour. Loral bristles black, white towards the base. Breast and abdomen finely mottled with brown and fawn or dusky white, each feather with two brownish black spots, which are separated by a white bar. Tarsi covered for three-fourths of their length with short rufous colored feathers, barred with brown. Feet and claws not quite so slender as in the Masuri specimen.

Measurement in inches: wing 5·6; tail 3; tarsus 1.”

10—(81 *bis*).—**Ninox.** (***Strix***) ***hirsuta***, *Temm.*; *N. affinis*, *Tytler*.

Andamans.—*T. and B.*, *Ibis*, *N. S.*, *III*, 1867, *A. O. Hume*, *Scrap Book*, p. 421.

Nicobars.—*Pelz.*, *Reise der Novara*, *Vögel*.*

THIS bird differs from the ordinary Indian *scutellatus* chiefly in size; but also, it is said, in being much more rufous on the under parts and darker generally above.

Colonel Tytler's *N. affinis* is, I believe, the same bird as Temminck's *Strix hirsuta* (*Nouv. Rec.*, *Pl. Col.*, *Vol. II*, *Pl.* 289), the original description of which is to the following effect:—

Front and lores white, but the feathers which take their rise in this space and cover a part of the beak are black. The top of the head and the nape have an ashy tint; the back, wing-coverts, and quills are of a uniform unspotted brown; but on lifting the scapular feathers, large white spots are seen upon the inner webs and on the secondaries, nearest the body.

All these spots are hidden by the external feathers when the wing is in repose. The throat is reddish; the breast and abdomen whitish, covered with large reddish-brown spots. The inferior tail-coverts marked by a few spots of brown; the claws mottled with red and brown; their naked parts appear to have been yellow during life. The stiff and rayed feathers with which they are garnished are of a clear red. The beak is black, with a white edge. The tail feathers are marked with four bands of brown and four of ashy, very regular; the end of all tipped white. The sexes differ by the larger size of the female.

Total length of male 9·5 inches, and of female 11·25 inches.

A specimen received by me from the Nicobars agrees with Temminck's plate, and sufficiently well with the description. I have had no opportunity of comparing it with the original specimens of *N. affinis*; but Mr. Hume, to whom I forwarded

* I possess a specimen also sent from the Nicobars.

it for examination,* considers that it is probably identical with that species (*vide* "Stray Feathers," p. 12).

In dimensions, however, my specimen exceeds Colonel Tytler's.

N. affinis : wing 6·9—7 ; tail 4·4.

Nicobar specimen : wing 8 ; tail 5.

A full description of *N. affinis* will be found in Mr. Hume's *Scrap Book*, p. 421.

11—(81 *ter*).—**Ninox obscurus**, *Hume*.

Nicobars.—*Hume*, *Stray Feathers*, I, p. 11.

Andamans.—*Ball*, *J. A. S. B.*, XXXIX, 1870, Pt. II, p. 240.

MR. HUME has described this species on p. 11 of this Journal. The specimen which I mentioned in my paper on Andaman birds, *loc. cit.*, was received by me from Mr. Homfray, who told me he had shot it in the vicinity of Port Mouat.

Its measurements are as follows :—

Length 12 inches ; wing 8·5 ; tail 4·75 ; bill at front ·75 ; tarsus 1.

HIRUNDINIDÆ.

12. **Hirundo Andamanensis**, *Tytler*.

Andamans.—*T. and B.*, *Ibis*, N. S., III, 1867, p. 316.

"LENGTH 4·36 inches ; wing 3·5 inches ; tail 1·86 inches ; bill at front ·18 inches (?) ; tarsus over ·25 inches. The upper parts, including head, shoulders, back and upper tail-coverts, are of a shiny purple ; wings and tail brown ; under tail-coverts the same, with purple tips to the feathers ; throat, breast, and belly white. Bill black ; legs apparently light-yellow in the live bird. The tarsus not feathered."

13—(82).—**Hirundo rustica**, *Linn*.

Andamans.—*T. and B.*, *Ibis*, N. S., III, 1867, p. 317.

14—(96).—**Acanthylis gigantea**, *Tem*.

Andamans.—*T. and B.*, *Ibis*, N. S., III, 1867, p. 317.

15—(103).—**Collocalia nidifica**, *Gray*†

Andamans.—*T. and B.*, *Ibis*, N. S., III, 1867, p. 317.

Nicobars.—*Pelz.*, *Reise der Novara*, *Vögel*, 1865, p. 39.

16—(103 *bis*).—**Collocalia Linchi**, *Hersf.* and *Moore* ; *Hirundo fuciphaga*, *Thunb.* ; *Collocalia affinis*, *Tytler*.

Andamans.—(*C. affinis*, *Tytler*), *T. and B.*, *Ibis*, N. S., III, 1867, p. 15 ; *Blyth*, *Ibis*, N. S., IV, 1868, p. 131 ; *Jerdon*, *Ibis*, 1871, p. 356 ; *Ball*, *J. A. S. B.*, XLI, 1872, Pt. II, p. 276.

* It was such a vile specimen, it was impossible to be certain.—ED.

“THIS species differs from the former in being nearly an inch shorter, and in having a white abdomen and longer wings in proportion to its size. Length 5 inches.”—*Horsf., Linn. Trans., XIII, p. 143.*

In Wallace’s monograph of the genus *Collocalia*, P. Z. S., 1863, p. 384, *C. Linchi* and *C. fuciphaga* are treated as distinct species; but the consensus of most ornithologists is in favor of their being identical.

C. affinis, Tytler, is considered by Blyth and Jerdon to be the same as *C. Linchi*. Its description is as follows:—

“Upper parts jet black, with green and blue reflections; throat and breast brown; belly yellowish-white; under tail-coverts dark-brown, with green reflections, each feather edged with white; bill and legs black. The male a slightly larger bird than the female.”

♂ Length 3·75 in.; wing 3·52 in.; tail 1·36 in.

♀ ” 3·5 ”;; ” 3·75 ”;; ” 1·36 in.

The following is a description of the specimens from the Andamans recently examined by me:—

Above.—Black, with dark-green reflections; an indistinct white band on the rump; no spots on the tail.

Underneath.—A white rectal spot; chin to breast cinereous; the edges of the feathers lighter, thence to vent greyish-white; feathers centred cinereous. Under tail-coverts centred greenish-black.

Length to end of tail 3·3; wing 2·95; tail 1·4 inches.

They correspond in length of body and coloration with specimens of *C. fuciphaga* from Batavia and the Nicobars (Blyth’s Cat. No. 429). The wings are shorter, but that is in consequence of the primaries not being fully grown. With Pelzeln’s figure of *C. Linchi* they also agree.

Variety.

Variety from the Nicobars.—Blyth, *J. A. S. B., XV, 1846, pp. 23, 369*; Pelz., *Reise der Novara, Vögel, 1865, p. 39, Pl. II, fig. 2.*

BLYTH remarks that “several specimens from the Nicobar Islands differ a little from *C. fuciphaga* of Java in having more white underneath; the crown and back darker and tinged with blue more than green, and the wing somewhat longer and straighter or less sickle-shaped. These characters obtain both in young and old, but separation of them seems hardly justifiable.”

CAPRIMULGIDÆ.

17—(112).—*Caprimulgus Asiaticus*, Lath.

Andamans.—T. and B., *Ibis, N. S., III, 1867, p. 318.*

MEROPIDÆ.

- 18—(118).—**Merops Philippensis**, Linn.

Andamans.—*T. and B., Ibis, N. S., III, 1867, p. 318.*
Nicobars.—*Blyth, J. A. S., XV, p. 369.*

- 19—(119).—**Merops quinticolor**, Viell.

Andamans.—*T. and B., Ibis, N. S., III, 1867, p. 318.*

CORACIADÆ.

- 20—(126).—**Eurystomus orientalis**, Linn.

Andamans.—*Ball, J. A. S. B., XLI, 1872, p. 277.*

HALCYONIDÆ.

- 21—(127 bis).—**Pelargopsis Burmanica**, Sharpe, *P. Z. S.*, 1870, p. 65.

Andamans.—(*H. leucocephalus*, L.), *Blyth, Mouat's App.*, 1863, p. 357; (*H. Capensis*, L.), *Visc. Walden, P. Z. S.*, 1866, p. 315; (*H. leucocephalus*, L.), *Tytler and Beav., Ibis, N. S., III, 1867, p. 315; Ball, J. A. S. B., 1872, p. 277.*

“HEAD, which is distinctly capped, clear albescent-grey; sides of the neck and a collar encircling the same very deep ochre: upper part of the back very rich cobalt; wing-coverts greenish, more distinctly washed with blue; quills brown; the inner web pale ochre at the base; the exterior web, especially of the secondaries, externally edged with bright blue; tail bright-blue above, dark-brown beneath; entire under surface very deep ochre; bill dark-vermillion; feet dark-red. Total length 14·0 inches; of bill from front 3·4, from gape 3·7; wing 6·0; tail 3·8; tarsus 0·5; middle toe 1·0; hind toe 0·5.”—*Sharpe.*

Specimens which I have recently examined agree with this description, but not with the accompanying figure. I have as yet seen no Nicobar specimens. Sharpe places the Novara specimen from the Nicobars, identified by Pelzeln as *H. Javana*, *Bodd.*, under the following species.

- 22—(127 ter).—**Pelargopsis Fraseri**, Sharpe. *P. Z. S.*, 1870, p. 65.

Nicobars.—*Pelzeln, Reise der Novara, Vögel, p. 49; Sharpe, Monog. Alced., p. 103.*

“HEAD indistinctly capped, ashy-brown, strongly washed with pale ochre; space between the bill and the eye, cheeks, and ear-coverts more decidedly ashy-grey; sides and back of the neck ochre; upper part of the back and scapularies indigo-blue, with more or less of a greenish tinge; whole of the back rich cobalt; wing-coverts blue, with a slight greenish lustre; quills

pale-brown; the inner web light ochre at the base; the outer web, especially of the secondaries, indigo; tail indigo above, black beneath; under surface of the body ochre, tinged with whitish on the throat; bill dark sealing-wax-red; feet dark-red. Total length 14 in.; of bill from front 3·3; from gape 3·7; wing 6·2; tail 3·8; tarsus 0·45; middle toe 1; hind toe 0·45.”—*Sharpe*.

23—(129).—**Halcyon Smyrnensis**, *Lin.*; *H. fuscus*, *Bodd.*

Andamans.—*Blyth and Tytler, Mouat's App.*, p. 357; *Visc. Walden, P. Z. S.*, 1866, p. 553; *T. and B., Ibis, N. S., III*, 1867, p. 319; *Ball, J. A. S. B.*, *XLI*, 1872, p. 278.

RESEMBLE specimens from Southern India and Ceylon in the brilliancy of their coloration.

24—(130).—**Halcyon atricapillus**, *Gmel.*

Andamans.—*T. and B., Ibis, N. S., III*, 1867, p. 319.

25—(131).—**Halcyon Coromanda**, *Lath.*; *H. Coromandelianus*, *Scop.*

Andamans.—*T. and B., Ibis, N. S., III*, 1867, p. 319; *Ball, J. A. S. B.*, *XLI*, 1872, p. 277.

26—(132).—**Halcyon chloris**, *Bodd.* *Todiramphus collaris*, *Scop.*

Andamans.—*Blyth and Tytler, Mouat's App.*, p. 357; *Visc. Walden, P. Z. S.*, 1866, p. 537; *T. and B., Ibis, N. S., III*, 1867, p. 319; *Sharpe, Monog. Alced.*, p. 238; *Ball, J. A. S. B.*, *XXXIX*, 1870, *Pt. II*, p. 240; *Ball, J. A. S. B.*, *XLI*, 1872, *Pt. II*, p. 278.
Nicobars.—*Blyth, J. A. S. B.*, *XV*, p. 369.

“NICOBARIAN specimens of this bird are remarkably brilliant, with much less of the green tinge than usual upon the crown and back.”

27—(132 A).—**Halcyon (Todiramphus) occipitalis**, *Blyth.*

Nicobars.—*Blyth, J. A. S. B.*, *XV*, pp. 23, 51, and 369; *Pelz., Reise der Novara, Vogel*, 1865, p. 46; *Ball, J. A. S. B.*, *XXXIX*, p. 31.

MR. SHARPE is of opinion that this bird is nothing but a local race of *H. chloris*, but adds that he has not had an opportunity of examining Nicobar specimens. On the other hand, Mr. Blyth in his original description distinguishes the two species, and, as noted above, points out how specimens of *chloris* (*collaris*) from the Nicobars differ from ordinary examples of that bird.

“Nearly allied to *T. collaris* and *T. sacer*, but specially distinguished by its strongly marked rufescent supercilia, which

are continued quite round the occiput, forming a narrow band; beneath this is a broader black band continued from the ear-coverts; and then a still broader fulvescent-white collar, as in the allied species; immediately bordering the last, the back is more infuscated than in the other, and the crown is likewise very dark, with some rufous lateral feathers; underparts white, a little tinged with fulvescent, but less so than in *T. sacer*; and the back, wings, and tail are much as in *T. collaris*; bill black above and the tip of the lower mandible; the rest of the latter white; legs brownish. Length of wing four inches and a quarter; tail three inches; bill to gape two and a quarter. Young rather smaller, with dusky margins to the pectoral feathers, and the beak shorter, with a white and hooked extreme tip.

“It may be remarked that in *T. collaris* and *T. sacer* there is a much less developed white occipital band concealed beneath the surface of the feathers, but which shows conspicuously when the coronal plumes are a little raised.

“The males are considerably brighter than the females, from which the above original description was taken; wings and tail much bluer, of a decided Prussian blue; the black nuchal collar (continued from the ear-coverts) is much narrower, and in some tinged with blue; and the white supercilia (carried round the occiput) have little or even no tinge of rufous.”

The following are the measurements of a specimen obtained by me in the Nicobars:—

Wing 4 inches; tail 3; bill at front 1.75; tarsus .53 inch.

ALCEDINIDÆ.

28—(134 bis).—**Alcedo Asiatica**, Swains. *A. meningting*, Horsf.

Andamans.—(*A. Bengalensis*, Gml.), Blyth and Tytler, *Mouat's App.* p. 357; (*A. meningting*), Horsf., *T. and B.*, *Ibis*, N. S., III, p. 319; Sharpe, *Monog. Alced.*, p. 23; Ball, *J. A. S. B.*, XLI, Pt. II, 1872, p. 277.

“HEAD and cheeks dark-blue, banded with bright cobalt; a longitudinal patch of feathers along the sides of the neck white, tinged with rufous; back beautiful bright cobalt; scapulars black, washed with blue; quills black; the inner web very light rufous at the base, the outer web washed with blue, more especially on the secondaries; tail bluish-black; throat whitish; a spot in front of the eye rufous, edged with black; under surface of the body with the under-wing and tail-coverts bright rufous, extending up the neck in very old birds; bill black; feet red.”—*Sharpe*, loc. cit.

PALÆORNINÆ.

29—(147).—**Palæornis Alexandri**, *Linn.*

Andamans.—*T. and B., Ibis, N. S., III, p. 319; Ball, J. A. S. B., LXI, Pt. II, 1872, p. 278.*

I HAVE recently described (l. c.), as being possibly only a variety of this species, a specimen from the Andamans, which is remarkable for the enormous size of its bill, the smallness of the moustachial stripe, the vivid emerald green (without a trace of the ordinary purplish grey bloom), of the head and cheeks, and the greater amount of blue than usual on the central tail-feathers. Should this variety prove to be sufficiently constant, I have suggested the name *magirostris* for it.

30—(148).—**Palæornis torquatus**, *Bodd.*

Andamans.—*Introduced by Colonel Tytler, vide Ibis, N. S., III, 1867, p. 320.*

31—(152).—**Palæornis Javanicus**, *Osbeck.*

Andamans.—*Ball, J. A. S. B., XLI, 1872, Pt. II, p. 279.*

BLYTH writes—" *P. Javanicus* differs only from *P. vibrisca*, in the Javan bird having a red lower mandible, while the other has a black one; but in some Javan specimens the lower mandible is blackish, and Mr. Gould has a specimen from Siam with a red under mandible; the Hainan birds have it black." Finsch, in his monograph 'die Papageien,' includes both under *P. Lathamii*, Finsch.

A male examined by me l. c., has the under mandible black.

32—(152 *bis*).—**Palæornis erythrogenys**, *Blyth*; *P. Nicobaricus*, *Gould*; *P. affinis*, *Tytler, the ♀.*

Andamans.—*Mouat's App., p. 355; Visc. Walden, P. Z. S., p. 537; Tytler and Beavan, Ibis, N. S., III, 1867, p. 319; Ibis, N. S., IV, 1868, p. 132; Ball, J. A. S. B., XXXIX, 1870, p. 240; Ball, ibidem, LXI, 1872, Pt. II, p. 279.*

Nicobar.—*Blyth, J. A. S. B., XV, 1846, pp. 23, 51, and 368; Pelzeln, Reise der Novara, Vögel, 1865, p. 97; Gould, P. Z. S., 1866, p. 555; B. of Asia, Pt. IX.; Ball, J. A. S. B., XXXIX, 1870, p. 30.*

For further references, see Finsch's 'Die Papageien.'

"Allied to *P. Malaccensis*,* but readily distinguished by the blossom (or rather cherry) red hue of the cheeks not being continued round the nape, and by its larger size and differently shaped tail. Length of wing $7\frac{1}{4}$ inches, and of tail 10 inches, the middle pair of tail-feathers exceeding the next by $3\frac{3}{4}$ inches. General color bright-green, more yellowish below, and tinged

* ? *Malaccensis*, Gm. = *longicaudatus*, Bodd.

in the male with hoary greyish-blue on the nape and back; * winglet and primaries blue, the latter margined and broadly tipped with green; middle tail-feathers also blue, margined with green for the basal half, and the rest of the tail-feathers chiefly or wholly green above, and all of them dull-yellow below; the cap is not of a distinct emerald green as in *P. Malaccensis*, but uniformly colored with the black (save where the latter is tinged with grey in the male); there is a well-defined narrowish black streak from the nostril to the eye and the same black moustache as in *P. Malaccensis*, and the lores and ear-coverts (only) are blossom-red. Upper mandible coral-red, with a white tip; the lower one black. The female merely differs in having the crown, nape, and back quite uniform green, without the brownish blue tinge conspicuous in the male; and the upper mandible is more or less black, like the lower one.”—*Blyth*.

“*P. affinis*, Tytler, is described as generally like *P. erythrogenys*, the red cheek-mark and coloration of which it possesses, but differs constantly in having a black bill.” Mr. Blyth points out that this is certainly the female of the above, and notes the similar cases afforded by *P. nigrirostris*, Hodg., and *P. Javanicus*, &c.

The collection which I recently examined contained a number of marked males, and some corresponding to the description of *P. affinis* which there can, I think, be no doubt, were the females. In the females the moustachial streak is dark-green.

The following are the measurements in inches:—

♂	Length	14;	wing	6·8;	bill from gape	·85;	tarsus	·55.	
♀	„	10·7;	„	6·8;	„	„	·76;	„	·55.

33—(151 bis).—*Palæornis caniceps*, *Blyth*.

Nicobars.—*Blyth*, *J. A. S. B.*, *XV*, 1846, pp. 23, 51, 368; *XIX*, 233; *Pelzeln*, *Reise der Novara, Vögel*, 1865, p. 98; *Gould*, *B. of Asia*, *XI*.

For further references, see Finsch’s ‘Die Papageien.’

“General color vivid yellowish-green, with the winglet and base of the secondaries indigo-blue, and the middle portion of the secondaries inclining to emerald-green; primaries black, the longest of them tinged with indigo towards their base; cap grey; a broad frontal band continued to the eyes (this mark corresponding to that of *P. pondicerianus*,† but very much broader), and likewise a broad black moustache with some black feathers also on the throat; above this moustache,

* A finer male, subsequently examined, had the nape and interscapularies light yellowish, rather than tinged with hoary grey, and the under-parts also more yellowish than in the other.

† ? Of Kuhl. = *javanicus*, Osb., or of Gmel. = *fasciatus*, Müll. ? Ed.

between it and the frontal band, the feathers are of the same grey as those of the crown. The beak has the upper mandible coral-red, with a white tip, and the lower mandible black; the form of the bill is both narrower and less deep than in *P. Alexandri*, and angulates above towards the base.

"The size approaches that of *P. Alexandri*, which at once distinguishes it from all other known species of the group.

"A female from the Malay Peninsula had the tail developed to the usual length in this genus, and green above with some blue on its middle feathers, and dull golden yellowish below; the head less pure grey than in the male, and the bill wholly black."

Measurements in inches:—

♂ Wing 6' ; tail 6'5 ; bill at front 1'12 ; tarsus '5.
 ♀ " 6'2 ; " 5' ; " " 1'12 ; " '5.

34—(153).—*Loriculus vernalis*, Sparrm.

Andamans.—T. and B., *Ibis*, N. S., III, 1867 ; Ball, J. A. S. B., XLI, Pt. II, p. 279.

PICIDÆ.

35—(157 bis).—*Picus Andamanensis*, Blyth.

Andamans.—Blyth, J. A. S. B., XXVIII, 1859, p. 412, Note ; Tytler and Beav., *Ibis*, N. S., III, 1867, p. 321 ; Blyth, *Ibis*, N. S., IV, 1868, p. 31 ; Ball, J. A. S. B., XLI, Pt. II, p. 279.

"NEARLY affined to *P. analis*, Temm., of Java, which it resembles in size and proportions, as also *P. pectoralis*, Bl., all three differing from the common *P. Macei* of Bengal by their smaller size and white spotted middle tail-feathers ; in *P. Macei*, as also in the affined Himalayan *P. brunneifrons*, the four medial rectrices, and in *P. atratus*, the six medial rectrices, are spotless black, the lastnamed being the largest of this particular group ; in *P. Andamanensis* the middle tail-feathers have three* distinct pairs of white spots, while in *P. pectoralis* they have four pairs of white spots of larger size. But the Andamanese bird is specially characterized by the large round black spots upon its breast, each margined with whitish ; the ear-coverts also longitudinally streaked with black, and the flanks are more conspicuously rayed than in the others. In other respects, this bird resembles *P. Macei*. The lower tail-coverts are bright crimson, and the crimson tips of the coronal feathers of the male are less developed than in *P. Macei*, especially towards the forehead. Length of beak to gape 1 inch ; of

* Out of five specimens which I have recently examined, three have got four pairs of spots.—V. B.

closed wing $3\frac{7}{8}$ inches; and of middle tail-feathers $2\frac{1}{2}$ inches.”—*Blyth*.

Mr. Blyth has seen this bird in a collection from Sumatra.

36—(169 bis).—**Muelleripicus Hodgii**, *Blyth*.

Andamans.—*Blyth*, *J. A. S. B.*, *XXIX*, 1860, p. 105; *Tytler and Beav.*, *Ibis*, *N. S.*, *III*, 1867, p. 320; *Ball*, *J. A. S. B.*, *XXXIX*, 1870, *Pt. II*, p. 241; *Ball*, *J. A. S. B.*, *XLI*, 1872, p. 279.

“WHOLLY black in both sexes, except the crown, occiput, and moustaches of the male, which are vivid crimson as usual, and the occiput only of the female. It is smaller than the *M. Hodgsoni*, Jerdon, of Malabar, or *M. Javensis*, Horsf., of the Malayan Peninsula and more western islands, the closed wing measuring but $7\frac{1}{4}$ inches, the middle tail-feathers 6 inches, and the beak to forehead $1\frac{3}{4}$ inches.”

A specimen measured by me had the following dimensions in inches :—Wing 6·8; tail 6·2; bill at front 1·6; tarsus 1·2.

CUCULIDÆ.

37—(203).—**Cuculus micropterus**, *Gould*.

Andamans.—*Ball*, *J. A. S. B.*, *XLI*, 1872, *Pt. II*, p. 280.

38—(214).—**Eudynamys honorata**,* *L.* = *E. orientalis*, *L.*, *apud Jerdon*.

Andamans.—*T. and B.*, *Ibis*, *N. S.*, *III*, 1867, p. 321.

“THE Koel was twice observed by Colonel Tytler, besides being frequently heard calling in the woods.”

39—(214 ter).—**Eudynamys Australis**, *Swains*.

For Syn., see Gould’s *H. B. A.*, Vol. I, p. 632.

Nicobars.—*Pelzeln*, *Reise der Novara*, *Vögel*, p. 103.

“THE adult male has the entire plumage deep glossy greenish blue-black, the green tint predominating on the back and wings; under red bill yellowish-olive; feet purplish-black. The adult female has the head and neck glossy greenish-black; back, wings, and tail bronzy brown, with numerous oblong spots of white on the back and wing-coverts; the remainder of the wing crossed by irregular bars of white stained with rufous; tail regularly barred with white, stained with rufous and slightly tipped with white; line from the angle of the mouth and all the under surface white, stained with buff, spotted with black on the sides of the throat, and crossed on the abdomen and under tail-coverts with narrow irregular lines of blackish-brown. The young has the head and upper surface mingled bronze and buff, disposed in large patches; wing-coverts reddish-buff, crossed by narrow bands of brown; remainder of wings and tail

* ? *rectius*, *honorata*.

bronzy-brown, crossed by bands of rufous; under surface rufous, crossed by narrow bars of blackish-brown; tail-feathers longer and more pointed than in the adult.

This bird is inserted on the authority of Pelzeln. No specimen has been as yet received in Calcutta from the Nicobars.

40—(217 *bis*).—**Centropus Andamanensis**, *Tytler*.

Andamans.—*T. and B., Ibis, N. S., III, 1867, p. 321.*

Andamans.—*Ball, J. A. S. B., XLI, 1872, Pt. II, p. 280.*

ORIGINALLY described by Captain Beavan as follows:—"Of a chesnut or rather cinnamon chesnut color, and a little smaller than the Indian *C. rufipennis*, but wants entirely the black markings of that bird."

The following is a description of specimens recently received by the Indian Museum:—Head, neck to middle of back, chin, throat, and breast rufous-grey. Abdomen, thigh-coverts, and under tail-coverts the same, with an ashy tinge. Back, rump, and upper tail-coverts ashy; wings and scapulars rufous-bay. Tail brown, paling from the centre to the margins of the feathers. Bill black; length 17-18 inches; wing 7·5 inches; bill at gape 2·7 inches; tarsus 1·9 inches.

Both in its call and habit it very much resembles *C. rufipennis*.

NECTARINIDÆ.

41—(224).—**Arachnothera pusilla**, *Blyth*.

Andamans.—*T. and B., Ibis, N. S., III, p. 322.*

42—(235 *bis*).—**Arachnethra pectoralis**, *Horsf.*

Trans., Lin. Soc., XIII, p. 167.

Andamans.—*Tytler and Beav., Ibis, N. S., III, 1867, p. 322.*

Nicobars.—*Blyth, J. A. S. B., XV, 1846, p. 370; Pelz., Reise der Novara, Vögel, 1865, p. 52; Ball, J. A. S. B., XXXIX, 1870, Pt. II, p. 31.*

"ABOVE greenish olivaceous; forehead, neck, throat, and breast shining (metallic) cyaneous black; abdomen yellow; quills dark, with yellow margins; rectrices black, terminally banded with white. Length 3·5 inches. The male is conspicuously distinguished by the bluish-black color of the anterior parts separating the breast from the abdomen by a defined line. The lower part of the tail appears nearly white; the interior rectrices are terminated by a narrow band, which on the exterior ones successively becomes wider. The female differs from the male in entirely wanting the dark bluish-black color on the throat and breast."—*Horsfield*.

For further remarks on this species, synonymy, &c., see Visc. Walden's Paper on the Sun Birds in *Ibis, N. S., IV, 1870, p. 26.*

43—(235 *ter*).—**Arachnecthra frenata**, Müll.; *Nectarinia Australis*, Gould, (*P. Z. S.*, 1850, p. 201.)

Andamans.—Ball, *J. A. S. B.*, *XLI*, 1872, *Pt. II*, p. 280.

LORD WALDEN describes this species as follows:—"Differs from *A. pectoralis*, Horsf., by wanting the metallic blue frontal patch, by having the yellow supercilium and yellow cheeks more strongly marked, and by being larger than even Lombok examples of that species. In all other characters the two species are identical. An example of a female has the under plumage quite as deep yellow as the male; it likewise possesses a yellow supercilium."

The collection of Andaman birds recently examined by me contained specimens of an *Arachnecthra*, which are distinguished from *pectoralis* by wanting the metallic blue frontal patch. The wing corresponds exactly with that in Müller's figure. In all the ♂ specimens there are more or less distinct traces of a maroon pectoral band. In other respects it corresponds exactly with the above description of *A. frenata*. The bill is longer than in *pectoralis*, being .8 inches, or equal to that of *A. intermedia*, Hume.

LANIADÆ.

44—(261).—**Lanius cristatus**, L.; *L. phœnicurus*, L.

Andamans.—Blyth, *J. A. S. B.*, *XXIX*, 1860, p. 106; *T. and B.*, *Ibis*, *N. S.*, *III*, 1867, p. 322.

45—(261 *bis*).—**Lanius lucionensis**, Scop.

Andamans.—Blyth, *Mouat's App.*, p. 360; *T. and B.*, *Ibis*, *N. S.*, *III*, 1867, p. 322; Ball, *J. A. S. B.*, *XLI*, 1872, *Pt. II*, p. 280.

MR. BLYTH (*loc. cit.*) says, "agrees with specimens from China and the Philippines."

A specimen in a collection recently made by Dr. Dobson, is identical in coloration with one in the Indian Museum from Mr. Swinhoe, Amoy. It differs from the ordinary specimens of *cristatus* in the silvery white of the forehead, chin, and throat, and in the almost entire absence above of any tinge of rufous, except on the upper tail-coverts.

Length 71; wing 35; tarsus 95; bill at front 5 inches.

46—(266).—**Tephrodornis grisola**, Blyth.

Andamans.—Blyth, *Mouat's App.*, p. 360.

CAMPEPHAGIDÆ.

47—(270).—**Graucalus Macei**, Linn.

Andamans.—*T. and B.*, *Ibis*, *N. S.*, *III*, 1867, p. 322; Ball, *J. A. S. B.*, *XLI*, 1872, *Pt. II*, p. 281.

G. Macei, the Northern, as distinguished from *G. Layardi*, the Southern Indian form, &c. See Blyth, *Ibis* for 1866, p. 368.

48—(270 *quat*).—**Graucalus Dobsoni**, Ball.

Andamans.—Ball, J. A. S. B., *XLI*, 1872, *Pt. II*, p. 281.

Above.—Dark-slaty, darkest on the head; wings and tail brownish-black; the quills lighter on the inner webs, faintly edged with white on the outer; two outer rectrices on each side narrowly tipped with dusky white; a black stripe from the lores round the eyes to the ear-coverts, thence faintly continued as a collar in one of the specimens.

Underneath.—White, barred with black from chin to under tail-coverts inclusive; under wing-coverts similarly barred.

Length 10·2; wing 6·2; tail 5·4; tail at gape, 1·23; tarsus 95 inches.

49—(270 *quint*).—**Lalage (Erucivora) orientalis**,*
Gm.; *Ceblephyrus striga*, Horsf.; *Turdus striga*,
Raffles.

Nicobars.—Pelz., *Reise der Novara, Vögel*, p. 81.

THE following is Sir S. Raffles's description of *Turdus striga*:—

"Seven inches in length, with a rather thick heavy body. Back, wings, and crown of the head of a shining blue-black; under-parts, forehead, and neck greyish-white; wing-coverts edged and tipped with white; bill short, nearly straight, and scarcely notched. The colors of the females are much duller, and the upper parts are brown."

In Horsfield's description the length is given at 6½ inches; the external rectrices are tipped with white.

50—(271).—**Pericrocotus speciosus**, Lath.; *P. Andamanensis*, Tytler, (*the young bird*).

Andamans.—T. and B., *Ibis*, N. S., *III*, 1867, p. 322; Ball, J. A. S. B., *XLI*, 1872, p. 281.

P. Andamanensis, Tytler, is, I believe, only the young male of *P. speciosus*, with the transitional plumage.

51—(276).—**Pericrocotus peregrinus**, Linn.

Andamans.—Blyth, J. A. S. B., *XXVIII*, 1859, p. 274; Blyth, *Mouat's App.*, p. 360; Ball, J. A. S. B., *XLI*, 1872, p. 282.

THE Andaman form corresponds with that from Southern India, as figured by Gould.

52—(281 *ter*).—**Buchanga (Dicrurus) Andamanensis**, Tytler.

Andamans.—T. and B., *Ibis*, N. S., *III*, 1867, p. 322; Ball, J. A. S. B., *XLI*, 1872, p. 282.

DESCRIBED as "peculiar in having hair-like feathers springing from the nostril. Both Colonel Tytler's specimens have white lunules on the under wing-coverts."

* ? *Potius*, L. *terat.*, Bodd.—ED.

The following is a description of the specimens which I have examined:—Above and below black, with a greenish metallic gloss; primaries brown, fourth and fifth longest and equal; outer tail-feathers with a slight curl upwards; under wing-coverts spotted with white lunules; no rectal spot. A few hair-like feathers springing from the nostril; bill sharply keeled.

Length 11·6; wing 5·5; tail 6·75; bill to gape 1·25; tarsus ·87 inches.

53—(284).—**Dissemurus paradiseus**, Linn.

Nicobars.—Pelz., *Reise der Novara, Vögel*, 1865, p. 82.

HERR VON PELZELN gives a copious list of synonymes of this species, including *E. Malabaricus* and *E. Rangoonensis*, which are by many ornithologists regarded as distinct.

54—(279).—**Buchanga balicassius**, Linn.

At sea near the Nicobars.—Blyth, *J. A. S. B.*, XV, 1847, p. 370.

55—(285 *bis*).—**Dissemurus affinis**, Tytler; *E. Malayensis*, apud Blyth.

Andamans.—Blyth, *J. A. S. B.*, XXVIII, 1859, p. 272; XXIX, 1860, T. and B., *Ibis*, N. S., III, 1867, p. 323; Ball, *J. A. S. B.*, XLI, Pt. II, 1872, p. 282.

DESCRIBED as follows by Captain Beavan:—"The Andaman *Bhimraj* has no frontal crest whatever, and the character of the feathers of the head approximates nearly that of *Bhringa*. Colonel Tytler has had the bird alive, and never observed it attempt to raise the head-feathers (small as they are). The dimensions of a skin in his recollection are as follows: length to end of ordinary tail 12·5 inches, rest of tail 9·5 inches; wing 6·36 inches; bill at front 1 inch; bill at gape 1·36 inches; tarsus barely 1 inch."

Three specimens examined by me have only a very slight sign of elongation of the frontal feathers; their measurements are in inches:—

	Length to end of ordinary tail.	Wing.	Bill from gape.	Tail.	Outer tail- feathers.	Tarsus.
Sex? ..	12	6·2	1·45	6·2		1·
♂	12	6·4	1·5	6·5	15·	1·1
Sex? ...	13·3	6·5	1·5	7·	17·	1·1

56—(287 *bis*).—**Artamus leucopygialis**, Gould.

Andamans.—*A. leucorhynchus*, L., apud Blyth, *App.*, p. 358; *A. leucogaster*, Valenc., apud T. and B., *Ibis*, N. S., III, pp. 324, 555; *A. leucopygialis*, Gould, *Walden*, P. Z. S., 1866, p. 17; Ball, *J. A. S. B.*, XLI, 1872, p. 283.

LORD WALDEN, from comparison of the birds, has pronounced the Andaman to be identical with Mr. Gould's Australian species. Specimens, which I recently compared with Mr. Gould's figure, seemed to be somewhat larger, but to correspond in details

of plumage. Mr. Gould's description of the Australian birds is as follows:—

“Head, throat, and back sooty-grey; primaries and tail brownish-black, washed with grey; all the under surface and rump pure white; irides brown; bill light bluish-grey at the base, black at the tip; legs and foot nearly greenish-grey. Nearly allied to *A. leucorhynchus*, but is readily distinguished from it by the blue color of the bill.”

The following are measurements of specimens in the Indian Museum:—

Wing 5·1; tail 2·5; bill at front ·6; tarsus ·6 inch.

„ 5·1; „ 2·5; „ „ ·7; „ ·6 „

MUSCICAPIDÆ.

57—(290).—*Myiagra Azurea*, Bodd.

Andamans.—Blyth, *Mouat's App.*, p. 360.

Nicobars.—Blyth, *J. A. S. B.*, XV, p. 370; Ball, *J. A. S. B.*, XXXIX, Pt. II, 1870, p. 31.

IN the opinion of both Dr. Jerdon and Mr. Blyth, the following should also be referred to this species; but from a recent comparison of a good series from the Andamans with Indian specimens, I am inclined to think that there is a distinct race in the Islands. My own Nicobar specimen which I shot on the Island of Trinkut is quite albescent towards the bent.

58—(290 bis).—*M. Tytleri*, Beav.

Andamans.—T. and B., *Ibis*, N. S., III, 1867, p. 324; Ball, *J. A. S. B.*, XLI, Pt. II, 1872, p. 283.

THE original description of this bird is as follows:—“The general appearance is that of *M. azurea*, but it is a slightly larger bird (and differs conspicuously in entirely wanting the black gorget on the throat of the male). The under parts also, instead of being white, as in *M. azurea*, in our species are wholly blue, of a slightly duller hue, perhaps, on the lower abdomen and under tail-coverts. The upper parts are more brightly colored than in *M. azurea*. Dimensions of a skin are as follows:—

Length 6—6·25 in.; wing 2·75 in.; tail 3 in.; tarsus ·52 in.

“The tail and tarsus thus appear proportionally longer than in the other species. The bill at front is ·5 in., and at base ·75 in.”—Beavan (l. c.)

As suggested by a foot note, the absence of the black gorget is accidental, as the males which I have examined are all provided with it. The other distinctive features, however, exist in the specimens which I have examined.

59—(289).—**Tchitrea** *sp.*?

Nicobars.—Blyth, J. A. S. B., XV, p. 370; Mouat's App., p. 370.
 "DOUBTLESS *T. affinis*, A. Hay."

MERULIDÆ.

60—(351).—**Petrocossyphus cyanus**, Linn.; *Petrocincla pandoo*, Sykes.

Andamans.—Blyth, Mouat's App., p. 360.

Nicobars.—Pelz., Reise der Novara, Vögel, p. 71.

61—(356 bis).—**Geocichla innotata**, Blyth; *G. albogularis*, Blyth.

Andamans.—Blyth, J. A. S. B., XXVII, 1858, p. 270; Mouat's App., p. 360.

Nicobars.—Blyth, J. A. S. B., XVI, p. 146; Ball, J. A. S. B., XXXIX, Pt. II, 1870, p. 31.

"RESEMBLES *G. citrina*, but has the ferruginous colour of the head and under parts, and the ash colour of its upper parts, more intense; no white upon the wings, and the lower tail-coverts only (not the vent) are white. From the Malayan Peninsula" ... "What I take to be two females of the same species from the Nicobar Islands have the throat white, and some white at the sides of the vent; the wings, rump, and tail only are deep ashy, the back and scapularies being olive-green, much as in the female of *G. citrina*. These are also smaller than the Malayan bird, the wing being but four inches, and the rest in proportion, whereas the Malayan (supposed male) has the wing four inches and a half. Should the Nicobar bird prove distinct, it might stand as *G. albogularis, nobis*."

Subsequently Mr. Blyth identified both Andaman and Nicobar specimens with *innotata*.

Measurements of an Andaman specimen: length 7·2; wing 4·5; bill at front ·7; tarsus 1·1 inch.

62—(369 bis).—**Turdus rufulus**,* *Drapiez*; *T. modestus*, Eyton.

Andamans.—Blyth, Mouat's App., p. 360; Jerd. B. of I., vol. I, p. 531.

"BACK, wing-coverts, and crown of the head olivaceous brown; wing-coverts of the primaries tipped with white; primaries and tail brown; throat, round the eyes, and abdomen white; the latter sparsely spotted with cinereous; sides of the head and lower part of the breast ashy; flanks and upper part of the breast ferruginous; upper mandible and feet brown, lower mandible yellow."—Eyton.

Length 8·75; bill ·58; tarsus 1·16 inches.

* ? *pallidus*, Gmel.—ED.

63—(372 bis).—*Oreocincla inframarginata*, Blyth.

Andamans.—Blyth, *J. A. S. B.*, XXIX, 1860, p. 106; *T. and B.*, *Ibis*, N. S., III, 325; Blyth, *Ibis*, N. S., IV, 132.

“UNIFORM dark-olive above, with conspicuous pale rufescent whitish supercilia, and light rufescent spots tipping the wing-coverts; beneath pale, inclining to rufo-fulvous on the breast and front of the neck, pure white at centre of belly; the lower tail-coverts dark-olive, largely tipped with white; each feather of the lower parts, except on middle of throat and of belly, somewhat narrowly tipped with the colour of the back; outer caudal feathers successively more largely tipped with dull white, though even on the outermost these white tips are but slight. The usual *Oreocincla* markings on the inner surface of the wing. Bill dusky, and legs pale cinereous; closed wing $4\frac{5}{8}$ inches; tail $5\frac{1}{2}$ inches, its outermost feathers $\frac{3}{8}$ inch shorter than the middle pair; bill to gape $1\frac{3}{16}$ inches; tarse $1\frac{1}{16}$ inches. Short first primary $\frac{3}{4}$ inch long, the second equalling the fourth and a little shorter than the third. The bird approximates the female of *Merula Wardii*, Jerdon.

“The above is possibly a female of a species in which the male is differently colored.”—Blyth.

BRACHYPODIDÆ.

64—(447 bis).—*Hypsipetes Nicobariensis*, Horsf. et Moore; *H. virescens*, Blyth, nec *H. virescens*, Temm.

Nicobars.—Blyth, *J. A. S. B.*, XIV, p. 575; XV, pp. 51 et 370; Horsf. and Moore, *Cat. E. I. M.*, I, p. 257; Pelz., *Reise der Novara*, Vögel, p. 75, Pl. III, fig. 2; Ball, *J. A. S. B.*, XXXIX, Pt. II, 1870, p. 31.

“PLUMAGE of a uniform olive-green above, the crown infuscated or of a brownish-nigrescent hue; throat and breast dingy-whitish, a little tinged with yellow; bill dusky, with yellow tomia, and elsewhere an appearance of its becoming ultimately wholly yellow; the tarsi plumbeous.” Distinguished from *H. Malaccensis*, which it resembles by its infuscated crown and its unstreaked throat and breast.

Measurements in inches—

Length 8·5; wing 3·5 to 4; tail 3·5; bill to gape 1 to 1·125; tarsus ·75.

65—(460).—*Otocompsa jocosa*, Linn.

Andamans.—Blyth, *Mouat's App.*, p. 361; *T. and B.*, *Ibis*, N. S., III, 1867, p. 326; Ball, *J. A. S. B.*, XLI, 1872, Pt. II, p. 284.

THIS is generally considered to be identical with the Bengal species.

66—(457 bis).—**Brachypodius melanocephalus**,
Gmel.; *Ixos mettalicus*, Eyton.

Andamans.—Ball, J. A. S. B., *XLI*, Pt. II, 1872, p. 284.

A YOUNG bird apparently belonging to this species occurred in the collection described by me (loc. cit.).

As it is not an Indian bird, I give the following description of the species:—"Yellow head, and throat metallic black; wings and a band near the apex of the tail black; bill and feet black.

"Female like the male, but head and underneath ashy, and tail-feathers internally brown."

Length 8 inches; tarsus 5 inches; ball at feet .4 inch.

67—(469).—**Irena puella**, Lath.

Andamans.—Blyth, J. A. S. B., *XXVIII*, 1859, p. 274; T. and B., *Ibis*, N. S., *III*, 1867, p. 326; Ball, J. A. S. B., *XLI*, Pt. II, 1872, p. 284.

THE above race, as distinguished by Visc. Walden, appears to be common.

68—(472).—**Oriolus melanocephalus**, Linn.

Andamans.—T. and B., *Ibis*, N. S., *III*, 1867, p. 327; Ball, J. A. S. B., *XLI*, Pt. II, 1872, p. 284.

A SMALL race of the above species. Measurement of one in the Indian Museum: wing 5; tail 3.5; bill at front 1; tarsus .9—1 inch.

69—(471 quat).—**O. macrourus**, Blyth.

Nicobars.—Blyth, J. A. S. B., *XF*, p. 46; Pelz., *Reise der Novara*, *Vögel*, p. 74; Ball, J. A. S. B., *XXXIX*, Pt. II, 1870, p. 31.

"CLOSELY allied to *O. Chinensis*, from which it is distinguished by its longer tail, rather smaller and less carinated beak (which, however, is always conspicuously larger than in *O. Indicus*), and by the greater patch of yellow upon the forehead of the male; another distinction consists in the disposition of the yellow upon the tail, which has scarcely any of this colour at the tips of its middle pair of feathers, while the outermost is in old males wholly yellow, with merely the shaft black towards the base, some specimens showing one or two insulated patches of yellow, chiefly at the extreme base of the outer web, and younger males having the tail coloured more as in the adults of the Chinese species, but still with scarcely a trace of yellow at the tips of the middle pair of feathers. The wings have their longest primaries slightly margined, externally, with whitish; and in some specimens, there is a slight yellow border to the secondaries and tertiaries; while younger males have the whole exterior portion of

the secondaries and tertiaries washed with yellowish-olive. The coverts of the primaries are always tipped with yellow, producing a slight spot of this hue, which does not occur, at least, in the adult male of *O. Chinensis*. Younger males have, as usual, the back and wings tinged with dusky-greenish; and in females (and perhaps still younger males) the same dull colour prevails on the head and neck; the broad occipital crescent is merely indicated; the feathers of the under parts have each a black central stripe, and the tail is wholly dusky-yellowish above, prevailing throughout the outer webs of all the feathers, while the inner webs are successively more deeply terminated with yellow, this color being alone seen underneath in adults of both sexes. Length about 11 inches or rather more; wing 6; tail 4·5—5; bill to gape 1·5; tarsus 1 inch.”—*Blyth*.

Peculiar to the Nicobar Islands, a specimen shot by me on Nancowry had the following dimensions:—wing 5·75; tail 4·75; bill at front 1·3; tarsi 1·1.

70—(471 bis).—*Oriolus Andamanensis*, *Tytler*.

O. coronatus, Swains, apud *Blyth*.

Andamans.—*Blyth*, *J. A. S. B.*, XXIV, 1856, p. 477; XXVIII, 1859, p. 272; XXIX, 1860, p. 106; *Mouat's App.*; *T. and B.*, *Ibis*, N. S., III, 1867, p. 326; *Ball*, *J. A. S. B.*, XLI, 1872, p. 284.

MR. BLYTH'S description of the Andaman Oriole is as follows:—“Has no yellow at all on the secondaries and tertiaries beyond a small yellow spot tipping the latter, and a slight yellowish-white margin to the former. Colour of male brilliant yellow, with the nape-mark, wings beyond the coverts of the secondaries and a portion of the tail, deep black. The female has a dusky-tinge on the mouth, and the exposed portion of the black part of the wings is tinged with green, as also the middle tail-feathers for the greater portion of their length. Middle tail-feathers in both sexes slightly tipped, and the rest successively more so, to the outermost, with bright yellow. Bill carneous and legs plumbeous, as usual in the genus. Wing $5\frac{1}{4}$; tail $3\frac{3}{4}$? (misprinted $9\frac{3}{4}$); bill to gape $1\frac{3}{8}$. In colouring, this species resembles *O. macrourus* of the neighbouring group of the Nicobars, but it is smaller, with narrower nape-mark and proportionally shorter tail, which last is commonly 5 inches in *O. macrourus*.”

Specimens of this bird, recently examined by me, had the following measurements:—

Length 8·8; wing 5·3; bill at front 1; tarsus ·9; tail 3·35 inches.

S Y L V I A D Æ.

71—(475).—**Copsychus saularis**, Linn.

Andamans.—Blyth, *Mouat's App.*, p. 360; *T. and B., Ibis*, N. S., III, p. 327; Ball, *J. A. S. B.*, Vol. XLI, 1872, Pt. II, p. 285.

THE Andaman bird appears to belong to the Indian and not to the nearly allied species (*C. Mindanensis*) from Malacca, Sumatra, &c. A fully grown male had the four outer rectrices on either side white. This character, according to Blyth, serves to distinguish *C. saularis* from *C. Mindanensis* and *C. Ceylonensis*.

Colonel Tytler remarked that "the males are more brilliant in color than those generally seen in Bengal."

72—(476 bis).—**Kittacincla albiventris**, Blyth.

Andamans.—Blyth, *J. A. S. B.*, XXVII, p. 269; 1859, p. 274; 1860, p. 107; *T. and B., Ibis*, N. S., III, p. 327; Ball, *J. A. S. B.*, XLI, 1872, Pt. II, p. 285.

"DIFFERS from *K. macroura* in its colouring and form of tail, the four middle feathers of which extend little beyond the next pair, and the medial pair but $\frac{5}{16}$ in. (instead of commonly 2 in., as in the other). Abdominal region, vent, tibial plumes, and insides of the wing anteriorly pure white, like the upper tail-coverts in both species; the hindmost portion of the flanks and the lower tail-coverts only being deep ferruginous; four pairs of outer tail-feathers more deeply tipped with white than in *K. macroura*; in other respects resembling that species, being a true *Shama* as distinguished from a *Dhyal* (*Copsychus*).
"Length of wing 3·5 in.; of tail 4·25."

Subsequently (*J. A. S. B.*, 1860, p. 107) Mr. Blyth remarked of this bird:—"It has much the appearance of being a fertile hybrid between *K. macroura* and *Copsychus saularis*."

*** "The female is of a duller color than the male, especially on the wings and breast, which latter is glossless black; tail also shorter, and the legs in both sexes are caraneous."

"The male is a good songster, not uncommon in the Islands."

73—(518).—**Arundinax ædon**, Pallas; *A. olivaceus*, Blyth.

Andamans.—Blyth, *J. A. S. B.*, XXIX, 1860, p. 106; *Mouat's App.*, p. 360; Ball, *J. A. S. B.*, XLI, 1872, Pt. II, p. 285.

74—(590).—**Motacilla Luzoniensis**, Scop.

Andamans.—*T. and B., Ibis*, N. S., III, 1867, p. 328.
COMMON in the cold season.

75—(594) ?—**Budytes citreola**, Pallas.

Andamans.—*T. and B., Ibis*, N. S., III, 1867, p. 328.

MR. BLYTH (*Ibis*, N. S., IV, 1868, p. 132,) considers that this should stand as *aureocapilla*, Vieill.

76—(605 bis).—**Anthus cervinus**, Pallas.

Andamans.—Blyth, *Mouat's App.*, p. 367; *T. and B., Ibis, N. S., III*, 1867, p. 328.

UNDER the name *Anthus rufosuperciliaris*, Mr. Blyth, J. A. S. B., XXIX, p. 105, described the Andaman pipit as follows:—Like *A. pratensis*, but with the supercilium and moustachial streak of a ruddy rusty color. Closed wing $3\frac{1}{4}$ inches; tail $2\frac{1}{4}$ inches; and bill and hind claw as in *A. pratensis*, of which it may be regarded as a local variety or sub-species. Subsequently (Mouat's App.) he wrote:—"Specimens agree with those of *A. cervinus* from Pegu and China." His remarks in the *Ibis* for 1867, p. 32, render it possible that the Andaman bird should stand as *A. rosaceus*, but there are no specimens in Calcutta for comparison.

AMPELIDÆ.

77—(631).—**Zosterops palpebrosus**, Temm.; *Z. Nicobariensis*, Blyth, the young.

Andamans.—*T. and B., Ibis, N. S., III*, p. 328.

Nicobars.—Blyth, J. A. S. B., XIV; Blyth, J. A. S. B., XV, p. 370; Ball, J. A. S. B., XXXIX, Pt. II, p. 31.

FURTHER comparison of Nicobar with Indian specimens is desirable.

CORVIDÆ.

78—(660).—**Corvus culminatus**, Sykes.

Andamans.—Blyth, *Mouat's App.*, p. 358; Blyth, *Ibis, N. S., IV*, p. 132.

MR. BLYTH writes:—"C. *Andamanensis* may be quite distinct from *C. culminatus*; but I have only received the latter from the Andamans, and as it is certainly common on both sides of the Bay of Bengal, extending southwards as far as Malacca (where it co-exists with *C. enca*), it is a species most likely to have found its way to the Andamans."

79—(660 bis).—**Corvus Andamanensis**, Tytler.

Andamans.—*T. and B., Ibis, N. S., III*, 1867, p. 328.

COLONEL TYTLER considered this bird quite distinct from *C. culminatus*, being "nearer *C. intermedius* of the Himalayas, but it is slightly larger than that species."

Captain Beavan wrote:—"I am inclined, after a careful examination of several specimens, to agree with Colonel Tytler, having besides, during my visit to the Andamans in 1865, noticed that the voice of this species differs entirely from that of

C. culminatus. Its habit, too, of congregating in flocks is enough almost in itself to separate it as a distinct species."

However improbable it may appear that there are really two so nearly allied species living side by side in the Andamans, it is, in the face of such distinctly expressed opinions as the above, and in the absence of any more recent observations, impossible to do more in this enumeration than regard them as distinct.

It is to be regretted that those (including myself) who have collected, subsequently to the above remarks having been published, have omitted to procure specimens.

80—(663).—**Corvus splendens**, Vieill.

INTRODUCED by Colonel Tytler, but does not appear to have thriven or multiplied.—*Ibis*, N. S., III, 1867, p. 329.

81—(674 bis).—**Dendrocitta Baylei**, Tytler.

Andamans.—Tytler, J. A. S. B., 1863, p. 88; Blyth, *Ibis*, 1863, p. 119 (misprinted *Bazlei*); T. & B., *Ibis*, N. S., III, 1867, p. 329; Ball, J. A. S. B., XXXIX, 1870, Pt. II, p. 242; Ball, J. A. S. B., XLI, 1872, Pt. II, p. 119.

ORIGINALLY described as follows:—

"Wings and tail nearly black, with a broad white patch on wing; head, neck, and throat dark-brown; back more rufous; belly and vent very rufous or chesnut; tail with twelve feathers (therefore, not a *Crypsirhina*). Not uncommon on the main island." Measurements in inches:—

	Length.	Wing.	Tail.	Bill to gape.	Tarsus.
♂	12·2	4·6	7·2	1	1
Sex ?	11·8	4·6	7	1·1	1

STURNIDÆ.

82—(684).—**Acridotheres tristis**, Linn.

INTRODUCED in the Andamans by Colonel Tytler.—*Ibis*, N. S., III, 1867, p. 329.

83—(686).—**Acridotheres fuscus**, Wagler.

Andamans.—Also introduced by Colonel Tytler, l. c.

84—(689 bis).—**Temenuchus Andamanensis**, Tytler = *T. erythropygia*, apud Blyth.

Andamans.—(*T. erythropygia*), Blyth, J. A. S. B., Vol. XXVIII, 1859, p. 274; (*T. erythropygia*), Blyth, J. A. S. B., XXIX, 1860, p. 106; (*T. Andamanensis*), T. and B., *Ibis*, N. S., III, 1867, p. 330; Blyth, *Ibis*, N. S., IV, 1868, p. 133; Ball, J. A. S. B., XXXIX, 1870, Pt. II, p. 242; Ball, J. A. S. B., XLI, 1872, Pt. II, p. 285.

THIS bird is considered by Mr. Blyth to be identical with the next species from the Nicobars, but Colonel Tytler and Captain Beavan and, indeed, Mr. Blyth himself) have pointed out that the Andaman birds are distinguished by characters the constancy of which is further established by the specimens most recently received by the Indian Museum.

Captain Beavan's description is as follows:—"Head, neck, throat, and abdomen pure white; back and upper tail-coverts pure ashy-grey; under tail-coverts white, with a very faint tinge of rufous; wings and middle tail-feathers dark glossy black with green reflections; the outer tail-feathers tipped with creamy yellowish-white, most broadly so on the outermost pair, and decreasing towards the middle; irides pale-yellow; the legs also yellow. The female differs from the male in having scarcely any green reflections on the wings, and the young is yet more dully coloured than the female. The species is very abundant on Ross Island, frequenting gardens and buildings in the neighbourhood of houses. It is very fond of ripe fruit, especially plantains."

Mr. Blyth wrote as follows of this bird, *T. erythropygia*, Blyth:—"Two more specimens from Port Blair, but still wanting the deep ferruginous colouring on the rump and upper tail-coverts; however, it is faintly indicated, and that intense colouring is probably peculiar to old males. There can be no doubt about the correctness of the identification."—*J. A. S. B.*, 1860, p. 6.

Again of *T. erythropygius*, *nobis*; "I have seen no Andaman example yet with distinctly rufescent upper tail-coverts." Colonel Tytler, according to Captain Beavan, says that "the old males never do get the rufescent upper tail-coverts of the true *T. erythropygius*."

In the specimens which I recently examined and compared with the Nicobar birds, there was a total absence of distinct rufescence on the rump, upper tail-coverts, under tail-coverts, and tail-feathers, such as is so well marked on all the Nicobar specimens.

Measurement in inches of a male in Dr. Dobson's collection in the Indian Museum:—Wing 4·3; tail 3·2; bill at front 1·1; tarse 1. Ditto of a fresh specimen, Blyth:—Length $7\frac{1}{4}$; wing $4\frac{1}{8}$; tail 3; bill to gape $1\frac{1}{8}$.

85—(688 *ter*).—**Temenuchus** (**Sturnia**) **erythropygia**, Blyth.

Nicobars.—Blyth, *J. A. S. B.*, XV, 1864, pp. 34 and 369.

THE following is Mr. Blyth's original description of this bird:—"This beautiful species would seem to be nearly allied to the Javanese *St. tricolor*, (Horsf.), v. *melanoptera*, (Wagler). Head, neck, and lower parts pure silky white; the wings wholly shining black; the scapularies and interscapularies pale satiny-brown; the rump, vent, upper and lower tail-coverts deep ferruginous; and the tail black, with more than half of its outermost feather ferruginous, and the rest successively less deeply tipped with ferruginous to the middle part; bill yellow, with the base of the lower mandible livid blue; and legs

(apparently) orpiment-yellow. Length approaching to nine inches; of wing four inches and a quarter to four and a half; and tail three and a quarter to three and a half inches; bill to gape nearly an inch and a quarter inches; and tarse an inch."

86—(690 bis).—**Calornis panayensis**, Scop.; *C. cantor*, Gml., vide *Ibis*, 3rd Series, Vol. I, 1871, p. 176.

Andamans.—T. and B., *Ibis*, N. S., III, 1867, p. 330.

ABOVE and below lustrous metallic green; wings and tail black, with a green gloss. The females and young have the under parts whitish, with dusky streaks.

87—(690 ter).—**Calornis affinis**, A. Hay.

Andamans.—T. and B., *Ibis*, N. S., III, 1867, p. 330; Ball, J. A. S. B., XLI, Pt. II, 1872, p. 285.

Nicobars.—Blyth, J. A. S. B., XV, 1846, pp. 36 and 369; Pelz., *Reise der Novara, Vögel*, 1865, p. 86.

MR. BLYTH distinguishes this bird as follows:—

"Differs from the Malayan *C. cantor* in its larger size, the wing being four inches to four and a quarter instead of three and a half to three and five-eighths; and tail three inches to three and a quarter instead of two inches and a half; tarsus seven-eighths instead of three quarters of an inch; and bill about the same in both; plumage of the two species absolutely similar at all ages, and glossed as brightly in fine specimens of either."

"Not uncommon on the main island. I obtained the young in August."—(R. C. T).

88—(690).—**Pastor roseus**, Linn.

Andamans.—T. and B., *Ibis*, N. S., III, 1867, p. 331.

"SEVERAL of these birds arrive in flocks in January."

89—(693).—**Eulabes intermedia**, A. Hay; *E. Andamanensis*, Tytler.

Andamans.—(*E. intermedia*, A. Hay), Blyth, *Mouat's App.*, p. 369; (*E. Andamanensis*, Tytler), T. and B., *Ibis*, N. S., III, p. 331; *Visc. Walden*, *ibidem*, note; Ball, J. A. S. B., XXXIX, Pt. II, p. 242; *ibidem*, XLI, 1872, Pt. II, p. 286.

Nicobars.—(*Gracula Javanensis*, Osbeck), Blyth, J. A. S. B., XV, 1846, pp. 31 and 369; (*Gracula intermedia*, A. Hay, *Mouat's App.*, p. 359; (*G. Javana*, Cuv.), Pelz., *Reise der Novara, Vögel*, p. 88; (*E. Andamanensis*, A. Hay), Ball, J. A. S. B., XXXIX, Pt. II, p. 31.

In my previous papers I have, on the authority of Lord Walden, treated the Andaman-Nicobar species of *Eulabes* as being distinct from the Indian *intermedia*. I have now, however, had an opportunity of bringing together sixteen specimens of *Eulabes* from the following localities:—Andamans 3, Nicobars 3, Malacca 6, Wellesley Province 1, Garrow Hills 2, Darjiling 1. Out of these, four, said to be from Malacca, may be at once put

aside as being larger birds with much higher and stouter bills. Whether these are identical with true *Javanensis* or not, in the absence of Javanese specimens for comparison, cannot be decided. Lord Walden (*Ibis*, 3rd Series, Vol. I, p. 177,) considers that the larger Malacca bird is distinct from the Javanese. But to separate by any definite or constant characters the remaining five Andaman and Nicobar birds from the seven specimens of *intermedia* from different localities I found to be absolutely impossible. Dr. Stoliczka, who has discussed the question at length, having had for comparison a portion of the specimens mentioned above, considers that they are all "geographical races of the same species," viz., *Javanensis*, Osbeck; but for *Javanensis* I would say *intermedia*, as being the species to which, I believe, all these races will ultimately, with the general consent of ornithologists, be referred.

Dimensions in inches.

		Wing 6·6 ;	tail 3 ;	bill at front 1 ;	tarsus ?
Andamans	...	" 6·5 ;	" 3·5 ;	" 1·1 ;	" 1·3
		" 6·3 ;	" 3·25 ;	" ...	" 1·4
Nicobars	...	" 6·75 ;	" 3·5 ^p ;	" 1·12 ;	" 1·3
		" 6·5 ;	" 3·3 ;	" ·9 ;	" 1·3

E. religiosa seems to have crept by some mistake into Mr. Blyth's list of Andaman birds, as he gave it on the authority of Colonel Tytler, who subsequently stated that it does not occur at all.

ESTRELDINÆ.

90—(701).—*Munia leuconota*, Tem.

Andamans.—Blyth, *Mouat's App.*, p. 359; *T. and B.*, *Ibis*, N. S., III, 1867, p. 331; *Ball*, *J. A. S. B.*, XXXIX, Pt. II, 1870, p. 242; *Ball*, *J. A. S. B.*, XLI, Pt. II, 1872, p. 286.

91—(704).—*Estrellda amandava*, Linn.

Andamans.—"Introduced by Col. Tytler, but not since observed. *Ibis*, N. S., III, 1867, p. 331.

TRERONINÆ.

92—(777 bis).—*Osmotreron chloroptera*, Blyth.

Andamans.—Blyth, *Mouat's App.*, p. 361; *T. and B.*, *Ibis*, N. S., III, p. 331; *Ball*, *J. A. S. B.*, XLI, Pt. II, p. 286.

Nicobars.—Blyth, *J. A. S. B.*, XIV, 1845, p. 852; Blyth, *J. A. S. B.*, XV, 1846, p. 369.

NEARLY allied to *T. Malabarica*, Jerdon, from which it "differs in its superior size, having the wing seven inches instead of six

to six and a quarter, and in the male having a large portion of the fore-front of its wing green instead of deep maroune; its breast also is less tinged with fulvous, and the forehead more albescent."

This bird is common in the Andamans.

CARPOPHAGINÆ.

93—(780).—*Carpophaga sylvatica*, Tickell.

Andamans.—Mouat's App., p. 361; Blyth, J. A. S. B., XXVIII, 1859, p. 274; T. and B., Ibis, N. S., III, 1867, p. 332; Blyth, Ibis, N. S., IV, 1868, p. 133; Ball, J. A. S. B., XXXIX, Pt. II, p. 243; Ball, J. A. S. B., XLI, Pt. II, p. 287.

THIS bird corresponds exactly with Indian specimens from Barma, Cachar, Central India.

94—(781 ter).—*Carpophaga insularis*, Blyth.

Nicobars.—(*C. sylvatica*, Tickell, var.), J. A. S. B., XV, p. 371; (*C. ænea*, var. *Nicobarica*), Novara Exp., Vogel, p. 105; Ball, J. A. S. B., XXXIX, Pt. II, p. 32.

MR. BLYTH originally distinguished this bird as a variety of *C. sylvatica*. "Nicobarian specimens seem invariably to differ from those obtained throughout the eastern coast of the Bay of Bengal (from Arracan to the Straits), and also from Java, Sylhet, Arracan, &c., all of which are quite similar, in the green of the upper parts being wholly unmixed with bronze, and the ash-grey of the head, neck, and under parts having no tinge whatever of vinaceous; the primaries are devoid of the grey tinge; and the lower parts are much less deeply tintured with *vinaceous*. Hence the *ensemble*, when several specimens of each are examined together, is conspicuously different."—Blyth.

The specimens which I obtained were bluish rather than greenish on the upper parts, and contrasted, both in this respect and in size, with specimens of *C. sylvatica*, obtained at the same time in the Andamans.

Nicobar bird: wing 10 inches; bill to gape $1\frac{1}{2}$ inches.

Andaman " : " $9\frac{1}{4}$ " ; " " $1\frac{1}{4}$ "

95—(781 quat).—*Carpophaga bicolor*, Scop.? *C. alba*, Gmel., nec *myristicivora*, Scop.

Andamans.—Blyth, Mouat's App., p. 362, Narcondam Island; T. and B., Ibis, N. S., III, 1867, p. 332.

Nicobars.—Blyth, J. A. S. B., XV, p. 371; Pelz., Reise der Novara, Vogel, p. 107; Ball, J. A. S. B., XXXIX, Pt. II, 1870, p. 32.

ABOVE and below white; the quills, a broad terminal band on the tail, and the margins of the external tail-feathers black. Measurements in inches—

A—wing 9; tail 5; bill 8; tarsus 1.

B— " 9.25; " 6; " 1; " 11.

A—specimen in the Indian Museum; B—in my own collection, shot on Camorta.

MACROPYGINÆ.

96—(791 bis).—*Macropygia rufipennis*, Blyth.

Andamans.—T. and B., *Ibis*, N. S., III, p. 332; Ball, J. A. S. B., XLI, Pt. II, p. 287.

Nicobars.—Blyth, J. A. S. B., XV, p. 371; Pelzeln, *Reise der Novara*, Vögel, p. 109; Ball, J. A. S. B., XXXIX, Pt. II, p. 32.

ORIGINALLY described by Mr. Blyth as follows:—"Most closely allied to *M. phasianella* of Australia, but rather smaller in all its proportions, and best distinguished by the uniform bright rufous hue of the entire under surface of the wings, which occupies the whole of each feather, except towards its tip. The primaries are also somewhat broadly margined with the same. There is really no other difference; but another species, *M. Amboinensis* of Java and the Moluccas, differs only from *M. phasianella* in its much inferior size."—Blyth.

Of three specimens recently received by the Indian Museum from the Andamans, two, marked males, "have the rufous of the neck, upper part of the back, breast and abdomen barred with dark-brown slightly undulating lines, which are close and distinct to the breast; thence to the vent they are wider apart, broken and fainter. In a fourth specimen, which is somewhat smaller, and may be either a young bird or the female, the bars are confined to the back of the neck. The rufous of the wing-coverts, edges of the wings, throat and abdomen is of a deeper tint approaching to bay."

Measurements in inches—

♂ Length 14·5; wing 7·5; bill at front '6; tarsus '9.

TURTURINÆ.

97—(795 bis).—*Turtur tigrinus*, Tem., nec *T. Chinensis*, Scop.

Nicobars.—Blyth, J. A. S. B., XV, p. 372; Mouat's App., p. 362.

ACCORDING to Blyth, *Ibis*, N. S., III, 1867, p. 150, this differs from *Suratensis* only in wanting the two conspicuous pale spots at the extremity of each feather of the mantle.—Vide on this subject J. A. S. B., XXXIX, Pt. II, 1870, p. 332.

98—(797).—*Turtur humilis*, Temm.

Andamans.—Blyth, Mouat's App., p. 362; T. and B., *Ibis*, N. S., III, p. 332; Ball, J. A. S. B., XLI, Pt. II, 1872, p. 287.

PHAPINÆ.

99—(798).—*Chalcophaps Indicus*, Linn.

Andamans.—Blyth, Mouat's App., p. 362; T. and B., *Ibis*, N. S., III, p. 332; Ball, J. A. S. B., XLI, Pt. II, 1872, p. 287.

Is said to be very abundant.

100—(798 bis).—**Chalcophaps augusta**, Bonap.

Nicobars.—Blyth, J. A. S. B., XV, p. 371; Mouat's App., p. 362; *Ibis*, N. S., IV, p. 133.

MR. BLYTH says,—“differs from the Indian race in the deeper ash-colour of the nape, and bluer vinaceous hue of the under parts, while the bands on the rump (so conspicuous in the Indian bird, and also in its near ally, *Ch. chrysochlora*), are very indistinct.” Again,—“the Nicobarian race differs from *Ch. Indicus*, and accords with the description of *Ch. augusta* in Pr. Bonap.”

Although I saw this bird when in the Nicobars, I did not succeed in obtaining a specimen. Those described by Blyth above are not now in a fit condition for comparison, having suffered much from the ravages of time and neglect.

CALCENINÆ.

101—(798 ter).—**Calœnas Nicobarica**, L.

Nicobars.—Blyth, J. A. S. B., XV, p. 371; Pelzeln, *Reise der Novara*, Vögel, p. 107; Ball, J. A. S. B., XXXIX, Pt. II, 1870, p. 32.

Cocos.—Blyth, Mouat's App., p. 362.

MR. BLYTH received specimens of this bird said to have been procured in the Cocos islands, and concluded that it might be looked for with a fair prospect of success in the Andamans, which intervene between them and the Nicobars. No instance, however, has come to notice of its having been found in the Andamans, and I am strongly inclined to believe that its occurrence anywhere north of the Nicobar Group must be extremely exceptional. Mr. Wallace (Malayan Archipelago, 1st Ed., Pt. II, pp. 66-66,) has shown that, though generally considered to be a bad flier, it is when migrating capable of long flight, even for an unbroken 100 miles; and the specimens found in the Cocos may have been stragglers. But it is undoubtedly a bird which belongs to the Malayan portion of the avifauna of the Nicobars, and which does not normally extend up to the Andamans.

The following is a description of this most beautiful of pigeons:—

Above.—Dark-green, with a bluish coppery lustre. *Below*.—Golden-green with the feathers tipped blue. Head dark blue-black, elongated hackle-like feathers of the neck purplish-black above, passing into others concolorous with the back below. Quills black, margined with dark-blue. Tail in the adult white; under tail coverts also white. Bill black.

Measurements (inches) of one in the Indian Museum:—Wing 10·5; tail 3·5; bill at front 1·; tarsus 1·6.

In the young the cervical plumes are not elongated, the tail is concolorous with the body, which is more coppery and less green than in the adult.

A small quail was seen and shot by me in the Nicobars, but the specimen was lost in the long grass.

MEGAPODIDÆ.

102—(803 sex).—*Megapodius Nicobariensis*, *Blyth*.

Nicobars.—*Blyth*, *J. A. S. B.*, *XV*, pp. 52, 372; *Pelz.*, *Reise der Novara*, *Vögel*, p. 110, *Pl. IV*, figs. 1–3; *Ball*, *J. A. S. B.*, *XXXIX*, *Pl. II*, 1870, p. 25.

“GENERAL hue of the upper parts deep-olive-brown, with a tinge of ochreous, which becomes more decided on the wings; lower parts dingy greyish-brown, with a slight tinge of ochreous on the breast, and which prevails throughout the under parts of a presumed female; crown slightly rufescent-brown, prolonged into a short crest, and the occipital feathers impended by the coronal are light greyish; lores, cheeks, and throat almost naked; the primaries light ochreous on their outer webs, and dusky internally; bill yellow, legs and claws dark horn-coloured. The cheek is colored nearly as in the adult, but is smothered with faint russet on the wings.—*Blyth*, loc. cit.

Measurements in inches—

	Blyth.	Ball.
Length	... 15.	15.5 (measured in the flesh).
Wing	... 9.	9.25
Extent	... ..	27. q. p.
Bill from gape	... ..	1.12
Tarsus	... 2.5	2.5*
Hind claw	... .8	.8

Iris dull orange.

The eggs are nearly truly elliptical and of enormous size as compared with the bird. Two which I procured had the following dimensions:—

	No. 1.	No. 2.
Length	... 3.3	3.125.
Circumference	... 6.6	6.375.

Colour brick-red. One figured by Pelzeln has somewhat of an olivaceous tinge.

This bird appears to be common in the Nicobars. In 1869, just after the formation of the new settlement, I shot three specimens one morning close to the houses. The first of them flew up into a tree and was shot when perched on a branch some 20 feet from the ground. The two others were running together and fell to the same shot. It is a very noisy bird, its peculiar guttural crow reminded me of the croaking of bull frogs, and

* Originally stated by mistake 3 inches.

may be represented by the syllables kiouk, kiouk, kōk, kōk, kōk, &c., *ad inf.*

I regret to say that I did not ascertain anything in addition to what was previously known and published regarding the nidification of this curious bird. The eggs are deposited in mounds of soil and rubbish and artificially hatched by the heat produced by the decomposing vegetable matter. The chick is fully fledged when hatched, and it is believed has mainly to take care of itself, being independent of the old birds.

No case, so far as I am aware, is on record of this bird having been found north of the Nicobar Group of Islands. It seems to be another link binding the Nicobar with the Malayan rather than the Indian avifauna.

For the information of the residents at the settlement on Camorta, should this meet their eyes, I would add that this is the bird which is known under the several aliases of grouse, peacock, and pheasant, and that both birds and eggs are far too valuable to be consigned to the pot, as I found had been the case at the time of my visit.

CHARADRIDÆ.

103—(842).—*Glareola orientalis*, Leach.

Andamans.—Ball, J. A. S. B., XLI, Pt. II, 1872, p. 287.

104—(845).—*Charadrius longipes*, Temm.

Andamans.—Ball, J. A. S. B., XLI, 1872, Pt. II, p. 287.

Nicobars.—(C. *pluvialis*, L.) Pelz., *Reise der Novara*, Vögel, p. 115.

105—(846).—*Ægialitis Geoffroyi*, Wagler.

Andamans.—Ball, J. A. S. B., XLI, 1872, Pt. II, p. 288.

106—(847).—? *Ægialitis mongolicus*, Pall.? *Æ. pyrrhothorax*, Tem.

Andamans.—T. and B., *Ibis*, N. S., III, p. 332.

COLONEL TYTLER only obtained a distant view of the bird thus identified, so that it may have been the preceding species which he saw.

107—(845 *ter*).—*Eudromias veredus*, Gould; P. Z. S., 1848, p. 38.

Andamans.—Ball, J. A. S. B., XLI, Pt. II, 1872, p. 288.

As this bird is quite new to the Indian avifauna, I shall give Mr. Harting's description of the species published in the *Ibis*, N. S., VI, 1870, p. 209.

I have no doubt as to the correctness of the identification of the Andaman specimen, the more particularly as I had an opportunity of comparing it with a specimen of *Eu. asiaticus* obtained in Abyssinia by Mr. Blanford.

“*Adult in summer.*—Bill black, moderately long, slender. Crown and upper portion of the back and wings hair-brown. Forehead, eyelids, and chin, pure white. Eyebrows, and sides of the face and neck, buff; the latter colour extending round the nape and separating the hair-brown of the crown from that of the back. Across the breast a broad rufous band, the lowest feathers of which are terminated by a slight edging of dark umber-brown; thence to the extremities of the under tail-coverts pure white; the shafts of the others brown. Secondaries long, reaching almost to the end of the primaries. Axillaries smoke-grey. Tail long, the outer web of the outermost rectrix white; its inner web dusky. In the second rectrix both webs dusky, the inner one darker. The rest of the rectrices getting darker as they approach the middle; the two middle the darkest and somewhat longer than the others. Legs long and slender; a considerable portion of the tibia bare. Toes three; the middle and outer toe connected at their base by a slight membrane; legs and toes yellowish-ochreous.

“*Young.*—Crown, back, and upper portion of the wings greyish-brown, each feather margined with buff. Forehead, eyebrows, chin, sides of face and neck, buff; this colour extending in the form of a collar round the neck. The pectoral band not well defined; but a cloudy patch of pale buffy-brown, extending across the breast, becomes gradually paler above and below, as it approaches the chin and vent. Primaries and axillaries as in the adult; secondaries broadly edged with buff. Legs and toes dull yellowish-brown.”

The adult in winter plumage is supposed to resemble the young, such being the case with *Eu. asiaticus*. Dimensions:—Total length 8·5 inches; bill 1; wing 6·5; bare portion of tibia ·8; tarsus 1·8; middle toe ·9.

Our Andaman specimen, shot in May, is a fully grown bird in this immature or winter plumage. It is more or less buffy below, approaching to pure white on the under tail-coverts. It has the shafts of the first two primaries white, while those of *Eu. asiaticus*, as pointed out by Mr. Harting, are dusky.* Its dimensions are as follows:—

Length 8·2; wing 6·4; bill ·9; tarsus 1·8; uncovered portion of tibia ·9.

* In *E. asiaticus*, the shafts are all mesially white, vide ante p. 17; where “mesially” is misprinted “usually.”

I have no information at present as to the abundance of this bird in the Andamans.

DROMADINÆ.

108—(860).—**Strepsilas interpres**, Linn.

Andamans.—T. and B., *Ibis*, N. S., III, 1867, p. 332.

Nicobars.—Blyth, J. A. S. B., XV, 1846, p. 373.

109—(861).—**Dromas ardeola**, Paykull.

Andamans.—T. and B., *Ibis*, N. S., III, 1867, p. 332.

Nicobars.—Pelz., *Reise der Novara*, Vögel, p. 134.

SCOLOPACIDÆ.

110—(871).—**Gallinago scolapacinus**, Bonap.

Andamans.—T. and B., *Ibis*, N. S., III, p. 333.

111—(877).—**Numenius arquata**, L.; *N. lineatus*, Cuv.

Nicobars.—Pelz., *Reise der Novara*, Vögel, p. 128.

SOME doubt exists as to whether *N. arquata* and *N. lineatus* are distinct. Herr v. Pelzeln seems to think they are, and refers the Nicobar curlew to *N. lineatus*, Cuv.

112—(878).—**Numenius phæopus**, Linn.

Andamans.—Blyth, *Mouat's App.*, p. 363; Ball, J. A. S. B., XLI, 1872, Pt. II, p. 288.

Nicobars.—Pelz., *Reise der Novara*, Vögel, p. 127; Ball, J. A. S. B., XXXIX, Pt. II, p. 33.

113—(891).—**Actitis glareola**, Gmel.

Andamans.—Ball, J. A. S. B., XLI, Pt. II, 1872, p. 288.

OBTAINED in May.

114—(893).—**Actitis hypoleucos**, Linn.

Andamans.—Ball, J. A. S. B., XLI, Pt. II, 1872, p. 288.

Nicobars.—Blyth, J. A. S. B., XV, 1846, p. 373; Pelz., *Reise der Novara*, Vögel, p. 131.

115—(894).—**Totanus glottis**, Linn.

Nicobars.—Pelz., *Reise der Novara*, Vögel, p. 129.

116—(897).—**Totanus calidris**, Linn.

Nicobars.—Pelz., *Reise der Novara*, Vögel, p. 129.

RALLIDÆ.

117—(912 bis).—*Euryzona Canningi*, Tytler.

Andamans.—*Blyth, Ibis*, Vol. V, 1863, p. 119; *Blyth, Mouat's App.*, p. 363; *T. and B., Ibis*, N. S., III, p. 333; *Ball, J. A. S. B.*, XLI, Pt. II, 1872, p. 288.

“ENTIRE upper parts and breast of a rich dark colour, approaching to maroon; a slight olivaceous tinge about the rump; throat less deeply colored; the abdominal region, flanks, and plumes black, with from two to four transverse white bands on each feather; under surface of the wing much the same.—*Blyth*. Measurements in inches—

	<i>Tytler.</i>	<i>Ball.</i>
Length	13	...
Extent	21	...
Wing	6·5	6·3
Bill to gape	1·5	...
„ at front	...	1·1
Tarsus	2	2
Tail	3·5	3·3

“Bill yellow, with slight tinge of green; eyes reddish-orange; feet slate-green.

“It is most like *E. Zeylanica* of India, but very much larger, with tail proportionally more developed.” It is not uncommon in the grass which borders creeks.

118—(913).—*Rallus striatus*, Linn.

Andamans.—*Ball, J. A. S. B.*, XLI, 1872, Pt. II, p. 288.

THE only specimen yet received from the Andamans “differs from *R. striatus*, as represented in the Indian Museum (*Blyth's Cat.*, No. 1671), in its longer and more powerful bill, and in the abrupt termination of the rufous of the head and back of the neck, which, in ordinary specimens, is continued for some distance along the sides of the bluish-grey of the breast. In other respects it corresponds with the common Indian bird. “Wing 5·15; bill at front 1·7; tarsus 1·55 inches.”

ARDEIDÆ.

119—(924).—*Ardea purpurea*, Linn.

Andamans.—*Ball, J. A. S. B.*, XLI, Pt. II, 1872, p. 289.

120—(926).—**Herodias egrettoidea**, Temm.

Andamans.—Ball, J. A. S. B., *XLI*, Pt. II, 1872, p. 289.

THE only specimen as yet brought from the Andamans had the following dimensions:—Wing 11·2; bill at front 2·9; tarsus 4·4; middle claw 3·5. The bill is yellow, with a brown tip to the upper mandible.

121—(927).—**H. garzetta**, Linn.

Andamans.—T. and B., *Ibis*, N. S., *III*, 1867, p. 333.

122—(928 bis).—**H. concolor**,* Blyth; *H. Andamanensis*, Tytler.

Andamans.—Blyth, *Mouat's App.*, p. 363; T. and B., *Ibis*, N. S., *III*, 1867, p. 333; Ball, J. A. S. B., *XLI*, Pt. II, 1872, p. 289.

Nicobars.—Blyth, J. A. S. B., *XV*, 1846, p. 332; Pelzeln, *Reise der Novara*, *Vögel*, p. 122; Ball, J. A. S. B., *XXXIX*, Pt. II, p. 34.

"FROM *D. asha*, Sykes, it is readily distinguished by its shorter legs; the tarsi measuring but three inches instead of three and three quarters; wing 11 inches or 11·5 in adults; about an inch shorter in the young; bill to forehead 3·5 and to gape 4·25; middle toe and claws 2 $\frac{3}{8}$, the claws short and much curved. Colour uniform dark-slaty throughout; some specimens having a white line on the chin and throat. Adults have narrow lengthened plumes on the back and breast, similar to those of *Ardea cinerea*; the occipital plumes are also somewhat lengthened as in *herons* generally, but I have seen no defined occipital crest, and doubt its ever possessing one. Beak mingled dusky and dull yellowish, and the legs appear to have been olive-green."—Blyth.

"Colonel Tytler (*Ibis*, N. S., *III*, 1867, p. 333,) proposed for the Andaman bird a new name in consequence of 'the young being black *ab ovo*, whereas those of the species for which it has been mistaken are white;' to which Mr. Blyth replied (*Ibis*, N. S., *IV*, 133,) '*H. Andamanensis* is decidedly identical with *H. concolor*, of which I never saw a white example. It also inhabits the Nicobars and Arakan.'

"I have carefully compared all the specimens available from the three localities, and the only difference which I can discern is, that the Andaman birds are, on the whole, a little smaller, but one of the Nicobar birds is about the same size as the largest Andaman."

* This is *jugularis*, Foster, while *asha*, Sykes, is *gularis*, Bose.—*Vide infra* C. O. I., Sind, No. 928.—ED.

Measurements in inches.

	ARAKAN.	NICOBARS.			ANDAMANS.			
	1	2	3	4	5	6	7	8
		Rev. J. Barbe.	V. Ball (J. A. S. B., xxxix, p. 32).	Rev. J. Barbe.	Present Collection.	Colonel Tytler.	Present Collection.	Colonel Tytler, (Ibis).
Wing ...	11·4	11·1	10·75	10·5	10·5	9·8	9·8	9·62—9·75
Bill at front...	3·4	3·3	3·5	3·	3·2	3·8	3·	3·
Tarsus ...	3·	2·8	3·	2·8	2·7	2·4	2·6	2·25—2·37

Note.—*H. jugularis* is given by Pelzeln as a distinct species from the Andamans.

123—(931).—*Butorides javanica*, Horsf.

Andamans.—T. and B., *Ibis*, N. S., III, 1867, p. 333; Ball, J. A. S. B., XLI, Pt. II, 1867, p. 290.

Nicobars.—Pelz., *Reise der Novara*, Vögel, p. 124.

Two specimens are conspicuously smaller than any of a good series of Indian specimens with which I have compared them, but correspond closely in coloration and other details of plumage.

♂ Wing 6·5; bill at front 2·4; tarsus 1·65 inches.

124—(937).—*Nycticorax griseus*, Linn.

Nicobars.—Blyth, J. A. S. B., XV, 1846, p. 373.

ANATIDÆ.

125—(963 bis).—*Mareca punctata*, Cuv.? *Querquedula Andamanensis*. Tytler.—*Ibis*, N. S., III, 1867, p. 333.

Andamans.—Ball, J. A. S. B., XLI, Pt. II, 1872, p. 290.

SINCE writing last on this bird (*loc. cit.*), I found an old unlabelled specimen in the Museum of the Asiatic Society, which,

I have no doubt, was the original sent by Colonel Tytler, and reported to have been lost. Colonel Tytler writes:—

“It was quite a new species, brown, with blue wings, and, from the best of my recollection, somewhat like *Q. ipecuteri*, (Vieillot) of South America.”

The collection made recently by Dr. Dobson contained several specimens, both of males and females; the former in non-breeding plumage, which is very similar to that of the latter. With *Mareca punctata*, as described and figured by Gould, they agree very well, save that there is a small white patch surrounding the eye in all our specimens. Two of the specimens show an incipient stage towards the full breeding plumage (described below), scattered patches of bright ferruginous or chesnut appearing on the feathers of the breast and abdomen.

As this bird has not been previously obtained in India, I give Mr. Gould's description in full (H. B. A., 365):—“The adult male in the spring of the year has the head and neck of a rich deep changeable bronzy-green; the whole of the upper surface rich brown, narrowly margined with light reddish-brown; all the under surface chesnut, with a round spot of black near the tip of each feather; greater wing-coverts white, outer webs of the secondaries deep rich velvety-black, two or three of the central feathers margined with bronzy reflections; remainder of the wings brown; tail dark-brown; on either side of the vent a patch of white; under tail-coverts black, freckled with tawny and white; bill bluish-lead colour; the nail and the edges of the upper mandible black, and the under mandible crossed near the tip by a band of reddish flesh-colour; irides hazel; feet lead colour, with the membranes of a somewhat darker hue.

“The female, the male in winter, and the young male of the year, have the head and neck minutely striated with brown and buffy white; all the under surface brown, with a blotch of black in the centre of each feather, and the upper surface wings and tail similarly marked, but less brilliant than in the male.

“There appear to be two very distinct races of this bird, one of which is much larger than the other; so great, in fact, is the difference in this respect, in specimens from various parts of the country, that the idea presents itself of their being really distinct species. The smaller race inhabits Tasmania; the larger, the western and southern portion of Australia.”

Measurements of Andaman birds:—

♂ Wing 7·5; tail 3·25; bill at front 1·5; tarse 1·3 inches.

♀ ♀ „ 7·1; „ 3·1; „ „ 1·4; „ 1·3 „

LARIDÆ.

126—(990).—**Thalasseus Bengalensis**, *Less.*

Nicobars.—*Blyth, J. A. S. B., XV, p. 373.*

127—(991).—**Onychoprion melanauchen**,* *Temm.*

Andamans.—*T. and B., Ibis, N. S., III, 1867, p. 334; Ball, J. A. S. B., XXXIX, Pt. II, 1870, p. 243.*

Nicobars.—*Blyth, J. A. S. B., XV, p. 374; Pelz., Reise der Novara, Vögel, p. 154; Ball, J. A. S. B., XXXIX, Pt. II, 1870, p. 34.*

128—(992).—**Onychoprion anosthætus**, *Scop.*

Andamans.—*Blyth, Mouat's App., p. 363.*

129—(993).—**Anous stolidus**, *Linn.*

Andamans.—*Blyth, Mouat's App., p. 363.*

130—(994).—**Anous tenuirostris**, *Temm.*

Andamans.—*T. and B., Ibis, N. S., III, 1867, p. 334.*

PHAETONIDÆ.

131—(996).—**Phaeton rubricauda**, *Bodd.*; *P. æthereus*.—*Bl.*

Nicobars.—*Blyth, J. A. S. B., XV, p. 374.*

132—(997).—**Phaeton candidus**, *Briss.*

Andamans.—*T. and B., Ibis, N. S., III, p. 334.*

PELECANIDÆ.

133—(1004).—**Pelecanus Philippensis**, *Gmel.*

Nicobars.—*Blyth, J. A. S. B., XV, p. 374.*

V. BALL.

* This species is *certainly* not congeneric with the next.—ED.



graphed under the Superintendence of Capt^d J. Waterhouse, Surveyor General's Office. Calcutta.

SKETCH MAP
OF
SINDH, THE WESTERN PUNJAB,
AND
MEKLAN COAST.

Tracts worked by the party are colored pink.

Scale of Miles.



Contributions to the Ornithology of India. *Sindh*, No. II.

In the previous number I gave a very brief résumé of the ornithological results of my trip to Sindh, and an equally brief sketch of the more prominent physical features of the province.

I omitted to notice that, although I failed to secure specimens, I ascertained the occurrence, as occasional and probably seasonal visitants to the hills dividing Sindh from Khelat, of a jay, presumably, from the description I received, *G. MELANOCEPHALUS*, Gêné, and of a huge black wood-pecker, with a crimson head, which can scarcely be other than *DRYOCOPUS MARTIUS*, Linn.

To these, I have now to add *ORIOIUS GALBULA*, Linn., of which an undoubted specimen (wing all but 6 inches long, small bill, not a trace of black behind the eye) has been sent me from Sindh, since our last number appeared, by Mr. James, c. s.

I have no doubt that the further investigation of the Avifauna of this province (which I have set on foot and which my present crude and imperfect notes are mainly intended to facilitate) will result in the identification of numerous other western forms and confirm my view that, ornithologically at any rate, Sindh is more closely allied with Asia Minor, North-Western Arabia, and North-Eastern Africa, than with any other province of India, it having, as my friend Dr. Stoliczka's recent valuable paper sufficiently shows, but little in common even with Cutch.

I now propose in view to showing more clearly when, how, and under what circumstances the various species I shall have later to enumerate, were met with, to reproduce my rough diary of our jaunt which, though necessarily without the slightest pretensions to literary merit, will, I hope, possess a certain interest alike for naturalists and sportsmen.

The accompanying sketch map, for which I am indebted to the kindness of Colonel Thuillier, c.s.i., in which the tracts explored are colored pink, will show clearly what portions of the country covered in our tour were worked, as also, alas ! how much I was compelled to leave untouched. As a rule we had three guns out daily; at times six, divided into parties some miles apart; and on two occasions, Dr. Day, the Inspector General of Fisheries, while inspecting fisheries and investigating the piscifauna of localities which I never managed to reach, collected vigorously for me, recording dates, sexes, and such likes particulars, as only a naturalist, himself in former days an ornithologist, could or would have done.

It would be ungrateful in the extreme if I were to omit to acknowledge most prominently the great assistance and uniform kindness which I met with from Sir W. Merewether, K.C.S.I., C.B., &c. &c., the *de facto* Governor of the province, as well as from Capt. Loch, Mr. Watson, Mr. James, C.S., Capts. Giles, Stiffe, and Bishop, Mr. Cole and Mr. Walton. Without the invaluable aid of these gentlemen, in particular, both my companion, Dr. Day, and myself would have had but sorry accounts to render of our respective explorations.

We started from Jhelum, a well known town in the Punjaub, situated on the banks of the river of the same name, on the afternoon of the 20th November. We had a couple of large flat-bottomed boats, with cabins, kitchens, &c., built on them, and in these boats we were, aided by a little rowing, to float down to Kusmore, the northernmost point of Sindh. Attached to the larger boats, our floating houses, we had two or three small row and gun-boats for shooting.

As we did not finally weigh anchor until 3 o'clock, we only got down about 20 miles by midnight, when we halted. We saw a few geese (*A. indicus*) and many cranes (*G. cinerea*), a few Brahminies (*Casarca rutila*), a couple of green shanks, and two or three of Temminck's stint. Killed four cranes, a long shot, besides a Brahminy. I scarcely ever remember to have seen any large Indian river such an entire blank. Noticed four or five of the common cormorant near the Jhelum bridge.

21st.—Early in the morning I landed, and prowled about in the hills which border the Jhelum here, about five miles north of Julalpoor. I saw several Oorial (*Ovis vignei*), but none within 300 yards. The ravines abounded with *Ammomanes lusitania*, and the Seesee, (*A. bonhami*), and these, with *Saxicola picata*, *Thamnobia cambayensis*, and *Otocompsa leucotis*, appeared to be their sole inhabitants. Between the hills and the river in the low comparatively rich alluvial flat, in which the ber tree, (*Z. jujuba*) was common, and covered with small unripe fruit, *Palæornis eupatria (alexandri)* was met with in small flocks. *Brachypternus aurantius* was also seen, and a single specimen of *Picus scindeanus*. I procured several of these birds, a few miles lower down at Julalpoor, some two years ago. We did not get off till near 2 o'clock. The wind was against us and we only made some ten miles by evening, halting near Abdoolapoor. We saw vast numbers of cranes and a few geese and Brahminies, but everything was very shy, and I only shot a couple of cranes, four geese (*Anser indicus*) a Brahminy and a female mallard, the only one, in fact the only true duck of any kind we saw. We saw a few *Seena aurantia* and *Sterna*

javanica. One or two *Ceryle rudis*, several pairs of *Haliaeetus leucoryphus*, and one pair of *Haliaeetus albicilla*. Shortly after leaving Jhelum, low hills, not exceeding 2,500 feet in height, begin to appear on the right bank of the river. The first and most conspicuous that comes in view is Jogitilla (used as a kind of sanitarium by the residents of Jhelum) being the north-east extremity of the salt range and one of its highest points. Throughout the day we had the eastern flanks of the salt range bordering the right bank of the river.

22nd.—Started early and got into Pindadhun Khan, about 4 o'clock in the afternoon. En route saw a few terns and one pretty large party of *Rhynchops albicollis*, the only ones yet seen. No geese, but numbers of mallard, of which I got sixteen. These were the only ducks seen, but we saw several parties of cranes, of which I got eight, to the great delight of our people. The boatmen have verily maws like crocodiles. Each man will eat a whole crane to his own cheek. Of a couple of fat mallards they think nothing. Luckily most of the birds knocked over yesterday and today had enough life left in them to permit of having their throats cut "in the name of God" before they died, without which ceremony the Mahomedans of our party (and all the boatmen, 20 in number, are Mussulmans) would not of course have eaten them.

Geese, crane, and mallard, shy and wild as they are as a rule inland, are easily killed on all our larger rivers. During the hotter parts of the day, they are generally found in larger or smaller parties, dozing in the sun, on some sandbank, at the water's edge, or in the case of the cranes, standing asleep in the water near some such bank. Directly such a party is sighted, you take a small boat, with a couple of sharp men, and row or punt noiselessly down to within two or three hundred yards, when if the water intervening is shallow enough to allow it, (and the boatmen seem to know this by instinct) one man gets quietly out of the boat behind, and while those in the boat lie down out of sight, he, stooping so as to be entirely concealed by the boat, pushes it down gently and noiselessly, aided by the stream, towards the flock. In this way you may approach, if all is well managed, to within twenty yards of even cranes. You make some arrangement at the bows (I had a false gunwale screwed on with suitable holes pierced in it) so as to admit of peeping and shooting, without raising your head into view, and when you get to what you consider the right distance, knock over as many you can sitting with the first shot, and as many more as you have time for, before they get out of shot, after they rise. Everything depends on judging rightly

the distance for the first shot, with reference to your bore and charge. A little too far, you wound a score, without perhaps bagging one; a little too near, and you kill one or two outright, and though you perhaps get two or three more as they rise, that is all; but if you use a good heavy duck gun, say No. 8 bore, with two ounces of A. A., and fire at about 50 yards, you will rarely get less than eight out of a good large flock of geese (and I have got as many as sixteen) with the first shot, besides a brace or so more, with green cartridge, as they rise.

The whole of our eight cranes were out of one party of about forty. Four fell dead at the first shot, another pair I dropped right and left, and two others whose wings were broken by the first shot were soon hunted down, though the men had a tremendous run for it on the sandbank, and the birds in both cases finally took to the water and swam well, fighting us desperately when we came up with them in the water.

The mallard keep in small parties of from three to six, and as a rule do not sit close enough to allow of more than two being killed at the first shot, while they rise so rapidly that one rarely gets more than a single bird after the first shot.

At Pindadhun Khan we landed, and slept in tents which had been kindly pitched for us by friends.

23rd.—We rode up very early to Kewrah, where I had to inspect the Mayo mines, some of the most splendid salt mines in the world, to which in the previous hot season, I had, with his permission, given the name of our late lamented Viceroy, who was the first Governor General who had ever visited them.

A cynic once remarked, when taxed with some foible, that it was necessary to leave something for malice and folly to carp at, and surely dear Lord Mayo's foibles must have been few and far between when malice and folly found nothing better to reproach him with than that he was a "galloping Viceroy." Of all the senseless howls ever raised against a great and good man this was perhaps the most absurd. Lord Mayo did his "galloping," as it was called, on fixed principles and under a strong sense of duty. He desired of all things to fit himself for forming an *independent* opinion on all important subjects and specially on that of the comparative abilities and capacities of all officials. He wanted to see all places and things in regard to which important questions had arisen, or were likely to arise, with his own eyes, and he wanted specially to see and judge of all officials in their own districts and jurisdictions, and to hear, as he could only hear in private personal intercourse, their opinions on all those subjects, which circumstances had given them opportunities of thoroughly studying. The Government had no money to

waste on stately progresses with vast camps, such as Governor-Generals had formerly indulged in. He wanted to visit places and inspect parts of the country which no rail or even metalled road had opened out; and he had, moreover, no time to waste dawdling along ten or fifteen miles a day with an army of followers; and so, with a small personal staff of half a dozen officers, he rode his forty to seventy miles a day, the only way in which he could do what he believed to be his duty (God having gifted him with the necessary physical powers) and do it at the same time quickly and at the least cost to the nation. If the public could have even partially realized the noble motive, (the noblest of all motives, that of qualifying himself to do thoroughly that work which his "strong and kindly hand which has ceased, alas, to labour and to give" found to do) that spurred him on to disregard discomfort and fatigue, they would, perhaps, instead of cavilling, have honoured him no less for his "galloping" habits than for his many other noble attributes.

I am not going to describe these famous mines—vast sparkling halls and corridors, many miles in length, hewn out of the living rosy crystal; I leave to the geologists those mighty caves carved in seams of chemically-pure salt, glittering, translucent, rainbow hued, seventy feet in thickness, with their weird pools, opaline stalactites, and altogether unearthly glories; *quant à nous, revenons à nos oiseaux*.

Throughout the bare and wondrous coloured hills and hillocks which surround the mines, hills in which red and green marls glare out in fiercest tints, above beds of snowy gypsum, from a back-ground in which lilac, purple, and wondrous shades of grey and brown are intermingled with a grace that mocks the skill of human artists,—hills grim and stony amidst all their gorgeur—the modest-tinted Isabelline lark (*A. lusitania*) and the no less soberly-arrayed Seesee swarmed, while over-head the terror of these harmless little partridges, quick to spy and sudden and cruel to strike, soared and swooped Bonelli's eagle. I counted no less than five pairs, all of whom, as we were told, had their eyries in the neighbourhood. Of the common Punjaub raven (*Corvus Laurencei nobis*) we saw numbers, one pair already busy repairing an old nest in a dense acacia tree. Slept at the mines.

24th.—Rode down back to Pindadhun Khan, shooting a very fine *A. fulvescens* en route. Embarked about 12 o'clock. Saw a few geese and killed three; a good number of green shank, a very few terns, a good many mallard, of which I killed fourteen, and a few other ducks, probably Gadwall, as one of them which I shot as they flew overhead at an immense height turned out

to be of this species. A few cranes, but none within shot. We also saw one or two *Ceryle rudis*, and in the evening, as we were out rowing, a party of about 20 *Secna aurantia* passed us. I also saw two or three pairs of Brahminies, and two or three small parties of *Ægialitis curonius* and *cantianus*, but as a rule the river was terribly bare.

25th.—We reached Boogga, half way to Shahpoor, about 2 o'clock this morning. Before starting again, I walked out along the banks where the loose sand was sparsely clad with stunted tamarisk bushes. In the bare spaces between these latter, I met with several small parties of the little sand lark which I have previously christened *Alaudula Adamsi*. These larks were rather wary, and we only obtained a single specimen: they run rapidly along the ground and squatting suddenly in some little hollow, become entirely invisible as they are exactly concolorous with the sand. They then creep or run unobserved along the ground and fly up at a considerable distance out of shot. The whole party rise together and mount a considerable height in the air. These are scarcely the habits of the *Alaudula raytal* of the valley of the Ganges.

Restlessly creeping sideways up the tamarisk bushes, showing themselves for one instant on the top of a stem, their breasts gleaming white in the morning sunlight, and their long tails cocked up over their backs like Cetti's warbler, I noticed and obtained several specimens of *Burnesia gracilis*. In their general movements they closely resemble, as might be expected, the Prinias and Suyas, but they have a mode of doubling back their tails over their heads which I have not noticed in either of these genera. A few pairs of *Saxicola deserti*, *atroregularis*, Bl. and *Ælicnemus indicus* were the only other inhabitants of the tamarisk jungle; but on a poplar-shaped babool tree in one of the fields that skirt the waste, I shot a huge dark *fulvescens*. We got off about half-past 9 o'clock. During the day I saw and shot the only *Esacus recurvirostris* I have yet met with. As a rule I think these birds chiefly affect those parts of our rivers in which the banks are more or less rocky or stony, or in which there are stony shoals. I saw a single cormorant, also a bird which seems to prefer the vicinity of stones.

In the Chumbal, for instance, and those portions of the Jumna immediately below its junction with the Chumbal, which are more or less rocky or have rocky shoals, hundreds of both these species would be met with in a third of the distance we have here travelled, as also of *Hoplopterus malabaricus*, of which as yet I have seen none. Cranes abundant as usual. Killed three. The Demoiselle crane is not known, it seems, to the boatmen, and

as a rule, I believe, this species prefers tanks and swamps to rivers. Hitherto, all the geese we have seen have been with one exception *A. indicus*, but towards evening, we came upon a huge flock (out of which I obtained eight,) containing a large admixture of *A. cinereus*. One of these latter weighed 8 lbs. I saw several large parties of mallard and bagged twelve. Also two small parties of the common teal of which I shot nine, but saw no other ducks excepting Brahminies. A few *Sterna javanica* and *Senx aurantia*. We have not seen a single gull since we started, though a single *Larus ridibundus* was shot at the Jhelum bridge the day before we arrived. Exactly at this time of year at Fazilka, on the Sutlej, I once shot two, and saw several *Larus ichthyætus*.

26th.—En route to Jung. Before starting, saw a few *Alaudula Adamsi* (nobis) on the sands, and a number of *Drymoipus longicaudatus* in the scanty fields. Along the river innumerable cranes, of which we killed six, and might have obtained many more. A few mallard were seen and killed, and also a few teal; a party of *Numenius lineatus* feeding at the water's edge; and in one place we came upon a huge collection of green shanks and the lesser red shanks, almost all asleep on one leg at the water's edge; and with them were associated a number of stilts (*H. intermedius*, Bl.) while a very few terns, *S. javanica*, were dotted about in amongst them. There were probably between three and four hundred birds sitting almost as closely as they could pack. Later in the day we came upon other parties of mallard, of which we got thirteen, and a huge flock of geese, of which I got seven, one of which proved to be *Anser cinereus*. I notice, as I often have before, that the larger birds of this species have the lower surface much mottled with large black patches. The whistle of our Indian curlew does not strike one as nearly so loud, round, or full, as that of our well-known English birds. In England where the wild geese are so wary, it seems odd enough that these birds should have been selected as types of stupidity, but here they are the tamest of all waterfowl. Flocks which during the night feed in the fields, sit all day on sandbanks by the water's edge, and allow a boat to drift almost on to them before they move. When still about a hundred yards off, the flock is seen to be grouped in a dense mass, fully half are asleep, a few are standing at the water's edge drinking slowly, raising the head at each gulp, and the rest are standing gazing listlessly about; as the boat approaches, a general low cackling takes place, a good many of the sleepers get up and begin to look about, and a few of those already on their legs begin to waddle away from the water's edge. As you approach nearer, all begin to walk slowly away, and as a rule, if you persist in coming within twenty yards, and

coming on quicker than they can walk, they rise and fly, or if you stand up in the boat or make any sudden noise, they will equally take the wing; but if you drift quietly down on them, they will let you come within twenty or thirty yards without quitting the bank. The first gun fired, the din that rises from a flock of 300 or 400, (and that I fired into this evening, I carefully counted and estimated, glass in hand, as we approached, to contain fully double the latter number,) is incredible; their cries mingled with the flappings of their wings, render it impossible to make one's-self heard for a brief space until they get well on the wing. Then they will circle round and round over head whilst the dead are being picked up, and the winged, which always take the water, swim well, and dive fairly, are being hunted down, uttering the most clamorous cries, not unfrequently returning within shot.

In a jheel (or large pond) a man who knows what he is about, by moving backwards and forwards slowly, can walk a flock of *Anser cinereus* before him up to any point he pleases, where some hidden comrade awaits their advent. The Indian goose, *A. indicus*, is not so tame. As a rule, I think the latter bird prefers rivers, the former swamps and lakes, though you will generally find some of both species, both in rivers and lakes. No one who has not shot a good deal in the rivers of Upper India can realize the myriads of geese that yearly visit us: those seen in swamps form but a small proportion of the total, and are chiefly *A. cinereus*. This latter goes far north to breed, but wounded and captured birds, that I have kept and tamed, have laid eggs freely, though these never hatched. *A. indicus*, on the other hand, breeds in the Tso Mourari, and other Thibetan lakes, and does not, so far as I know, cross the Koen Luen; but they are far more difficult to tame; and in fact I have never known of one being kept through the hot season in captivity, whereas the grey lag tames at once and lives for years in the poultry yard, apparently suffering little from the heat.

27th.—The little *Alaudula Adamsi* on the banks as usual. Soon after starting, saw three birds on a sandbank in the river which looked like grey lag geese, but seemed too small. Worked the boat up carefully to within fifty yards; as they were rising, knocked down two with the right barrel, No. 3 loose, and the third with a No. 2 green cartridge. Before I could load again, one of the first two flapped away, and rose heavily, flying away about half a mile, where it appeared to sink into a bare field, and lay with its wings outspread and head down. I thought it was dead—sent a boatman to pick it up; he got within a few yards of it when it rose and flew away out of sight. Marked the direc-

tion, and after an hour's search found it in a side-arm of the river. Worked cautiously up to it, but it rose out of shot and flew off, never rising above ten feet from the ground. Marked the direction, crossed the river and found it walking about slowly on some sand hills. Crept on my hands and knees to within about eighty yards, beyond which there was not an inch of cover. Could not get nearer; fired a BB green cartridge; cut the sand up all round him, but did no damage. He rose and flew a good mile, but I ran up to the top of a sand hill, and with the binoculars marked by three trees the precise spot at which he lighted. My people who were tired of plodding over loose sand, (it was getting very hot, being midday,) declared he went away altogether; persisted and went to the spot, goose not to be seen. When we got to the precise spot, I said "well, I am positive he lit here," and turned to go back, when suddenly he jumped up not five yards from me from under a little overhanging sand crest. I let him get thirty yards and rolled him over.

These three geese were *Anser erythropus*, Lin. nec. Gmelin, (the *A. albifrons*, Gm., of Dr. Jerdon's work) the first I have ever shot or seen alive in India in my life, though I have received specimens from Oudh. From the latter locality I have also obtained *A. minutus*, Naum. I once shot a pair of *A. brachyrhynchus*, Baill., in the Jumna, in the Etawah district, but all these three species are very rare, so far as my experience goes, in India.

Saw plenty of mallard (killed sixteen) and lots of cranes and barfronted geese, *A. indicus*, of each of which I killed several for the boatmen, and might have killed a dozen, also four teal (*Q. crecea*) of which I got two.

Towards evening I came across a large party of *Totanus fuscus*. Killed eight with a single barrel, No. 4 shot. Yesterday, by a similar shot, I killed six green shanks and one *T. calidris*.

Just as sun set, a fine male *Circus cyaneus* which can always be distinguished even on the wing by its blue throat and upper breast, passed close by me.

Looking at the grey lag geese shot yesterday, I may note, that Jerdon (probably quoting some English author) gives the weight at from 9 to 12 lbs. Now I have certainly weighed more than a hundred birds, and I have never met with one single bird that weighed quite 9 lbs. Very fine males weigh 8 to 8½, and females, 6 lbs. If the European bird really ever weighs 12 lbs., it must be a considerably larger bird, for ours feeding on the gram and other grain and lentil fields, are as fat and plump as it is possible to be, huge layers of fat underlying the skin and rendering the proper preservation of specimens a most laborious undertaking.

The bill and feet vary much in colour, sometimes both are a pale dirty pink, at others the bill will be a livid purplish red, and the feet a pale cream colour, barely tinged with pink. The plumage, too, varies a good deal. In some which I take to be the young, the lower breast, and the whole abdomen to vent, are pure white; in many they are strongly tinged with sandy or orange, in others very thickly and conspicuously mottled with brownish black. The head and neck vary from pale ashy or earthy brown, to dark clove brown; in most there is a mingled white and orange patch on the forehead. In some there is a similar spot at the base of the upper mandible, on each side, just above the gape. Often in birds killed just before they leave us in March or April, most of the feathers of the head and cheeks are obscurely tipped with orange, and traces of this are seen on the whole neck. Does this indicate an undescribed breeding plumage, or do our birds differ from the European? I note that most of our birds have a tiny patch of white on the centre of the chin and that the irides are dark brown.

Totanus fuscus swims well, not merely when wounded, but at times from choice. I once came upon a large flock, all busy swimming in a deep railway excavation full of water, in the Etawah district, and shot about a dozen with two barrels, thinking they must be some bird new to me; one that I wounded to-night swam down the river, nearly a mile, before we could come up with it.

28th.—Soon after starting, came upon a small party of mallard and shot four, then a pair of *Anas prakilorhyncha*, the grey duck, and bagged both right and left; then another pair of this latter species (of which I had previously seen only one other pair since starting) came flying a tremendous pace up the river; they passed at about eighty yards distance, but a green cartridge dropped both, a most astounding fluke! I notice that in the grey duck, the gurumpai of native sportsmen, the feet of the female are always a dull tile red, while those of the male are the most intense coral red I have ever seen. The yellow and red patches on the bill are also duller coloured in the female, and she has much less white on the tertiaries: she is also somewhat smaller.

Heretofore, since leaving Jhelum, the banks have always been low, rarely rising even ten feet out of the water; but this morning on our right, for some miles in length, the banks rose precipitously some forty or fifty feet high, earthen and sandy cliffs, amongst the debris of which I noticed several Saxicoline birds. Landed and succeeded in shooting one, (they were remarkably wary) which proved to be my new *Saxicola Kingi* (described in *Ibis*,

January 1871, p. 29). I am strongly inclined to believe that this is the species represented in Burnes's drawings, and which Blyth identified with *Cercomela melanura*, from which of course, now we have the bird, it proves wholly different.

Since leaving Jhelum, we have daily seen one or two of the Punjaub raven flying over the river, but they never seem to come down to the water's edge or sit upon the banks.

Later in the day I came upon four female smews, of which I shot one. These birds are rare in most places in the North-West Provinces, but every cold season large flocks are to be met with at the Nujjufgurh Jheel. Killed three cranes and seven geese. Might have killed many more, but all the boatmen and rest of the party had got as many as they could eat. Also saw two grey curlews which I shot. Came upon a huge party of mallard in which there was one male *Fuligula rufina*, which I picked out and shot as they rose.

One curious thing occurred. The left banks, for a couple of miles, are fringed with a dense sheeshum plantation. When passing opposite this, the boatmen picked up a tiny dead bird, water-logged, a mere rag. I could not make it out, so had it most carefully dried. It became a very fair specimen and turns out to be *P. nitida*, Latham, freshly moulted, very brightly coloured, and easily to be mistaken for *trochilus*, with which I at first wrongly identified it.

29th.—We hoped last night to reach the confluence of the Jhelum and the Chenab, but had to pull up about 10 P. M., some miles north of it, as although it was full moon, the water was so low, and the river so full of trees and stumps, that we kept sticking and striking every ten minutes.

Soon after starting this morning, I saw a solitary duck, which I dropped as she rose, an extraordinarily long shot, of course with green cartridge (No. 1.) It proved to be a female *Fuligula rufina*. Then shot a pair of curlews, and soon after, from close under the bank where they had escaped unnoticed, out sprung a brace of grey duck, which I brought to book right and left. One, however, was only winged, and swimming and diving, he led us a great chase, till, fairly tired out, I gave him another shot. Both were males. This species both flies, swims, and dives more briskly than the mallard. Later I came upon a party of Brahminies. Killed three sitting, and dropped a fourth, a long flying shot. I say killed three, but one was only, kilt entirely, and he led us a chase in the water, diving backwards and forwards, till I was almost induced to fire at him again; however, at last he rose within about fifteen feet, and I was lucky enough to knock him on the head with the last paddle (I had thrown two others

at him, which had disappeared down stream, but which we ultimately picked up,) which I skimmed at him.

Later a huge flock of geese, all swimming in the river, showing that they had been disturbed. They rose at, I guess, about 90 yards; but my long No. 8 bore gun, with green BB cartridge, fetched three of them, and one misguided bird flying straight at us, instead of beating a retreat with the rest, rolled over with a loose charge of No. 8. Afterwards I got within 40 yards of three grey duck, they rose, two flying abreast passed within 20 yards, flying low and slow, and I missed them, while the third which went right away fell dead, at over 60 yards to a green No. 3.

A party of five mallard, amongst a huge flock of *T. fuscus* and *calidris*; I knocked over two mallards just as they rose and a third in the air. Of the two first, one rose again and flew half a mile, dropping dead in the river. The other two both scrambled into the water, and the usual chase succeeded, one especially diving backwards and forwards under the boat in a manner more surprising than satisfactory, with a boat not too easy to pull, and a stream running some six miles an hour. Ultimately both were secured without firing. I saw two or three *Esacus recurvirostris*, and perhaps half a dozen black-bellied terns in the whole day. In the Jumna we should have seen at least fifty of these, *S. aurantia*, *S. minuta*, and *Rhynchops albicollis* in the thirty odd miles of river we have come. We halted at Asoowallah, 35 cos, (? about 53 miles) from Mooltan.

30th.—We halted last night about ten miles above the junction of the Ravee, and started again about 4 A. M. About 8 o'clock, I saw a small hawk perched on a tiny bush close to the bank. I landed and shot it when it proved to be an adult male merlin, the first I have yet shot or seen this trip. In the far North-West, this species is common in the cold weather, and I have had them sent me from near Umritsur and from the Sirsa district, but have never met with them further East. The day gave nothing to record. I saw great numbers of grey duck (bagged sixteen,) of Brahminies (bagged four,) of mallard (bagged four,) one teal, which I shot, two pair of *Spatula clypeata*, the first I have seen on these rivers, and innumerable geese and cranes of which I bagged a dozen; green and red shanks, and grey curlews, numerous; several *Esacus recurvirostris*. On the babool trees, on the banks on which I daily wandered for some miles, *Sylvia curruca* or *affinis*, *vide infra*, was very abundant, while *Pratincola caprata* and *indica* twittered and flittered about every dwarf shrub. Two or three pairs of *H. leucoryphus* were seen in a 30 miles pull. On the Jumna, wounded or

dead geese and fowl floating in the river were never safe for an instant from the swoops of these birds, and we had always to keep a rifle loaded to guard our spoils by a warning bullet; nay, despite bullets, they would sweep off a goose before one's face with the utmost audacity. Here they are few in numbers, and the struggle for existence is apparently not so keen. Certainly it is that during the last ten days I have had at least fifty fowl floating in the river under circumstances that would in either the Jumna, Chumbal, or Ganges have ensured the loss of at least half, without a single swoop having been made at them. Kingfishers are very scarce. I saw one *Halcyon smyrnensis* at Pindadhun Khan on the banks of the Jhelum, and of *Ceryle rudis*, I may have seen a dozen pairs altogether, and one family of five, since starting.

I found a large party of *Gyps fulvescens*, nobis, devouring a dead bullock on the banks of the river. It is useless any one saying that these are only the young of *fulvus*. Here was a party of fifty, all the same rich rufous tint. This month they will lay, and the young birds that one shoots in April and March, in fact before the first moult, are pale whitey brown. It is not until after the first moult, that they get the rich fulvescent hue that characterizes the species, and the older the bird (I judge by bones, bill, and claws) the richer the tint. That the species is distinct from *fulvus* of Europe, appears to me certain.

1st December.—Walked along the banks; shot a *F. jugger* which as it passed rapidly I took for a *Saker*. Also a *Pernis cristata*; *Saxicola*, both *isabellina*, Rüpp., and *deserti* common, *Coracias indica*, *Buchanga albirictus*, numbers of *Alaudula Adamsi*. I also obtained one specimen of the little *Phyllopseuste* that I described in the Ibis, under the name of *neglecta*, and which I originally received with other birds collected in Bhawulpoor by my friend Captain C. Marshall. It was flitting about in the babool trees with a lot of the lesser white throat, to which in manners it seemed closely to approximate. No geese seen today and only a few cranes; but grey curlew very numerous, and several parties of mallards, and grey duck, of each of which I secured about a dozen.

Since leaving Pindadhun Khan, I had repeatedly watched numbers of sand-martins flitting about the banks or skimming over the water catching gnats. To-day I again, as I had done on several previous days, shot a pair, hoping that they might be the European species (which I have never yet seen in India) said by Adams to be common on these rivers. They proved, however, to be *C. sinensis*. Tarsi, entirely bare; wings, 3.7,

very pale on the rumps. This and *subsoccata* (which appears to me to be a very doubtful species) are the only true sand-martins I have yet procured in India.

The almost entire absence of the small plovers on these rivers surprises me. Of the large *Esacus recurvirostris*, I saw two parties today, one of about seven, the other of at least ten birds, but they have hitherto been rare, and of *Hoplopterus malabariensis*, so very abundant on the Jumna and Ganges in the North-West Provinces, I have not yet seen a single specimen.

2nd.—Reached Shere Shah, the port (if I may use the phrase) of Mooltan, early in the morning. Only one train goes in daily, so drove into Mooltan 14 miles. En route noticed two *Saxicola Kingi*, always distinguishable by the rufous tail, in the fallow fields.

3rd and 4th.—Remained at Mooltan. Visited the fort and the shrines of Rookun Alum and Bhawul Huq. The latter was rebuilt by us after the siege of Mooltan which followed on the murder of Vans Agnew and Anderson, by Moolraj. It had been selected by Moolraj as a magazine; a chance shell of ours blew it up, and this so discouraged the enemy, who thought it a proof of our excellence in gunnery, that the siege was virtually over from that time. As Moolraj and party, the offenders, were Sikhs, while the shrine was a Mahomedan one, we rebuilt it. Neither possesses any architectural merits, but the Rookun Alum is plentifully adorned with highly glazed encaustic tiles and slabs, which have, ever since the thirteenth century, been much in use by the Mahomedans west of the Jumna.

5th.—Returned to Shere Shah early by rail, and embarked, killing a beautiful pair of *Chiquera typus*, Bp. About ten miles down passed the steamer that started on the 3rd. Presently this caught us up again. Then later it stuck again and we passed it. The consequence of this was that nothing was to be shot. The steamer groaned and grunted like a legion of devil-possessed swine, while the waves generated by the paddles kept the banks falling for a quarter of an hour after the vessel had passed, each little bit of bank coming down with a crack like a musket, so with very hard work all I got was one Brahminy, three mallard, three grey duck, and a brace of shovellers. I made one curious shot. Five green shanks were sitting on a point; one of my barrels had missed fire—as they rose I fired at them and knocked all five down, and that although the first and last must have been two yards apart and flying across me at about 45 yards. I saw three *Ardea cinerea*, and I may mention that I had previously seen single individuals, on several occasions, since leaving Jhelum. Also saw several grey curlew and shot one.

6th.—Early in the morning the steamer passed us again. There was no doing anything in her neighbourhood, so I pulled up at a thicket on the bank, and in this shot a *Sylvia cinerea*, *Burnesia gracilis*, *Phylloperoste neglecta*, and a female *Ruticilla*, which struck me as too olivaceous for *rufiventris*, but which turned out to be merely a freshly-moulted specimen. Just outside I got a shrike, *L. arenarius*, and two or three *Alaudula Adamsi*. Starting an hour later, when the steamer was out of sight and hearing, I saw several grey curlews, and a party of cormorants. I saw numbers of mallard, several grey duck, and a few brace of teal, but they were all so wild that I bagged only eighteen altogether. Green shanks very numerous. I saw at least a dozen flocks of from twenty to fifty each, besides innumerable singlebirds and pairs. Six gigantic herons baffled all my endeavours to get within shot. They were fully twice as large as the common heron, some of which were near them; I twice got within 250 yards and examined them closely with binoculars. Once they were near a pair of cranes, and though less bulky and differently built birds, they seemed very nearly, if not quite, as tall. They had a great deal of rufous about the neck. Could they have been *Ardea goliah*? They were manifest herons at any rate, and fully twice the size of *Ardea cinerea*. Since leaving Mooltan, we have seen very few cranes and until this evening no geese. This is due partly to the weekly steamers, but chiefly to the poverty of the cultivation on both banks. Geese, especially, rarely frequent rivers in India, unless there are good fields for them to feed on in the neighbourhood. About 10 p. m., we reached Kujil Meanee, the customs post, about seven miles above the confluence of the Chenab and the Sutlej.

7th.—Walked on the banks and worked inland for several miles, the young wheat springing up through huge clods, which in other places were festooned with the feathery leaves of the gram, which has not yet begun to put out its peach-coloured and purple blooms. In amongst this *Agrodroma campestris* and *Galerita cristata* were plentiful. On the little babool bushes that spring up every here and there, *Pratincola indica*, (or *rubicola*, take your choice!) flitted and fluttered, restless as usual, while sometimes on the higher clods, and sometimes on some bush, *Saxicola deserti* and *isabellina* were sunning themselves. On the larger babool trees *Sylvia orphea*, *Phylloperoste tristis*, *Collyrio*, (*Lanius* apud Auct) *erythronotus*, and *Coracias indica* were noticed; a single pair of mainas, *A. tristis*, were all I saw. They seem rare about here. Along the sand dunes, *Alaudula Adamsi*, as usual, swarmed, here and there in pairs, but generally, in little flocks; upon the

tamarisk bushes, *Burnesia gracilis* and *Drymoipus longicaudatus*, crept up and down the stems. A kestrel passed and was secured, and a pair of small falcons dashed by, of which I shot the male, which proved to be *Chiquera typus* (Bon.) Sport on the river worse and worse; very few geese, ducks, or cranes, and every thing so wild that no amount of care enabled one to work up to them—the day being cold and cloudy of course made the fowl more restless, and I only succeeded in bagging three grey-duck. I saw ten black storks (*M. nigra*) in company with one adjutant (*L. argala*, Lath. *dubius*, Gm.) Twice I got within 150 yards, and watched them closely with binoculars, but could not get a shot. This is a rare species in most parts of India. I have it from the Dhoon, the Peshawur valley, and Raipoor, and I once shot it myself in the Meerut district.

The day we left Mooltan I saw a huge flock of white birds in the distance which I could not make out. Today I saw another such flock which proved to be spoon-bills. Each flock must have consisted of many thousand birds. The river here, after the junction with the Sutlej, is very large, with numerous arms and many square miles of mud-flats. I worked all day amongst these and saw positively nothing,—no sandpipers, no little plovers, no gulls, no skimmers, only a few black-bellied terns.

8th.—For about fifteen miles after the junction with the Sutlej, the river was more absolutely bare than I have yet seen it. I hunted the banks and creeks for miles and saw absolutely nothing but one *Haliaeetus leucoryphus*, (*macei*, Cuv, apud Gray and Jerdon) a pair of *H. albicilla*, a pair of green shank, a couple of black-bellied terns, three Kentish plovers, and a few herons. Such an absolute desert I never came across, and what the reason of such absence of bird-life was, I am at a loss to discover. Further on, I first came across three *Pelicanus crispus*, and near them a small party of black stork, but all were too wary to allow of my securing a specimen. Lower down again I saw three *Haliastur indus*, the first we have met with since leaving Jhelum, and then we came upon an enormous flock of spoon-bill, containing, I suppose, ten thousand individuals; half a mile off a huge herd of black stork not less than five hundred, and again about a mile lower down, a mass of geese. I noticed a couple of pairs of Punjaub raven washing and feeding by the river side. We have seen surprisingly few of these since leaving Pind. Common herons appear to be very numerous. Rowing up to another enormous flock of spoon-bills as I supposed, I found there was an almost equal number of *Ardea alba* and *Threskiornis melanocephalus* intermingled with the spoon-bills,

and with these a few *Anastomus oscitans*.

9th.—On the banks, near the junction with the Indus, I procured for the first time *Laticilla Burnesi*, a rare bird I should say, as I have never before seen a specimen, nor have any of the numerous gentlemen who have collected for me ever succeeded in procuring it, although from its size, broad tail, and ferruginous under-tail coverts, it is a bird not to be overlooked. I suppose it is confined to the deltas of our larger rivers; in the upper portions of their courses, it is certainly not seen. Here the Chenab is more than a mile wide and the Indus a few miles west of us is even larger. The fields abounded with the crested lark, and *Pyrhulaula grisea*; *Burnesia gracilis*, very numerous, and also *Drymoipus longicaudatus*. I got a *Saxicola deserti* nearly in full summer plumage, which might almost have sat for Gould's *S. montana*. Several sparrows shot here, are *P. indicus*, but perhaps slightly brighter coloured than those from the North-West. No signs of *P. pyrrhonotus* yet. I shot a fine old male *F. jugger*, *Sylvia curruca*? and a *Lanius* which is clearly *isabellinus* with a well marked white wing-spot. Saw huge flocks of spoon-bills, white ibis, and herons, and a great flock of ruddy shell-drakes. Another huge herd of black stork, a fine osprey, and a flock of *Tringa cinclus*, out of which I killed eight. Then we came across two more ospreys, and as I was stalking one of these, a magnificent female peregrine dashed by, and I dropped her dead. Later on we came up with huge flocks of mallard (I could discover no other duck amongst them) and grey lag geese, but all so wild, that there was no getting within fair shot of them, and I only bagged five in all. As for the black stork, I fired at them twice with a rifle, but they would not allow one to come within even 300 yards of them. Grey curlew swarmed, and I knocked over four (out of a vast flock) with No. 8 shot, at fully 60 yards. I killed two out of the only three cranes I saw sitting, but several small parties passed us flying (of course out of shot), and we heard them trumpeting nearly the whole day. The extraordinary wildness of all the birds hereabouts leads me to conclude that there must be native or European sportsmen who worry them pretty regularly. I never in Upper India saw ducks and geese so very wild and wary.

10th.—(Sunday.) Very early in the morning reached Mithenkot. On the banks our people found numbers of *A. tristis* and the crested lark. The common crow was very abundant and struck me as peculiarly white-necked. The raven does not show here, but no doubt further inland, where hamlets and houses are not such rarities as hereabouts, it occurs.

11th.—In some grass, on the banks, I shot a *Laticilla Burnesi*.

It flitted and twisted about in the grass just like a *Prinia*, or *B. gracilis*. It clearly belongs I think to the *Drymoicinae*, and is not one of the *Timalinae*, in which Jerdon has placed it. *Chatarrhæa caudata* was common in this very grass, running rat-like with tail straight behind it along the ground, and nothing could be more different than the action of the two birds. *Sylvias* of the *curruca* type were very abundant in the babool and tamarisk bushes, of two distinct sizes. I killed a female of each. Their dimensions were—

Of the smaller, length	5·32,	of the larger,	5·6
Expanse	7·3,		8·2
Tail	2·		2·3
Foot length	0·95,		1·2
Breadth	0·7,		0·9
Wing	2·3,		2·6
Weight	0·3 oz.,		0·5 oz.

I examined carefully both birds, and they seemed to be unquestionably both young females, but the ovaries even under a microscope were mere colourless membranes.

Burnesia gracilis was, as usual, very common. I saw a pair of *Leucocirca aureola*. I shot one which strikes me as differing slightly in some respects from our North-West specimens. I shot also a *Collyrio* of the *caniceps* type, very conspicuously different from the true *erythronotus*; out of a flock of pipits passing I dropped one that proved to be *Anthus spinoletta*, Linn. (*A. aquaticus*, Bechs.) a species that I have already introduced into our Indian Avifauna.

A party of the professional fishermen of these parts (Mhorsk caste or tribe, I can't say which) passed me with a tame otter. I fancied it was trained to fishing, and stopped them and had them questioned. They told me the most extraordinary story which I put on record *quantum valeat*. It appears (so *they* affirm, but *I* utterly disbelieve it,) that otters are the favourite tit-bit of the river porpoises (*delphinus gangeticus*) which literally swarm here. A pole is stuck in the water where this is from 3 feet 6 inches to 4 feet deep, and to this pole the otter, when quite tame, is tethered by a cord some 20 feet long. Light, very obtuse-angled, conical, stick frames, about 7 feet in diameter at the base and some 4 feet high, are used in many parts of India lined with a strong net, for catching fish in shallows, by dashing down the frame-work over them as they pass upwards against stream. Three or four men armed with machines of this nature, but stouter than I have elsewhere seen, stand near the otter, and when a porpoise makes a dash at the little beast, one of the men plunges the cone down on the assailant. Like

the Roman retiarius, they carry both net and spear, and if the stroke succeeds, the porpoise is riddled with harpoons before he can break loose. The Mhorsk not only eat the porpoise, but they obtain from it a great deal of a very pure oil which fetches a good price, being esteemed throughout Northern India (and I believe not without some reason) a sovereign remedy for rheumatism, sciatica, and similar affections.

Pelicans, apparently *crispus* and *philippensis*, were numerous, but I seemed quite unable to hit them with my rifle. I had several easy shots at between 250 and 300 yards, and always succeeded in missing,—rather humiliating, considering that with this same rifle in former days I used to be absolutely certain of a 12-inch bull's eye. Black stork and huge flocks of grey lag and Indian geese and mallard were seen as usual, but except the latter, of which I bagged four, long flying shots, there was no approaching them.

In the afternoon I went to see the salt-works that are quite *sui generis*, at least I have visited almost every salt source in India, and never yet saw any thing so clumsy. The big boats could not go up the creek on which these works (of which there are twelve sets, in the villages of *Bungola*, *Bydsur*, and *Bhaicee-kadehra*) are situated, so I got into my punt and went off to the works, leaving instructions for the big boats to follow the main stream until they reached the southern mouth of the creek. We rowed about eight miles and landed, and then walked a mile or two to one of the works. Conceive a huge level field, as white as snow, from saline incrustations, the refuse of the manufactory, on which were arranged between three and four thousand clumsy, thick, unglazed earthenware saucers, from 2 to 3 feet in diameter, about 6 inches deep, ranged in double rows with great regularity, round a small tank of brine about 20 by 30 and some 6 or 8 feet deep. Out of this tank the brine is painfully ladled in buckets, and evaporated in the saucers, each saucer turning out about 24 crops in the year, and producing during this period from 80 to 100 lbs. of salt. The brine tank is filled by a duct leading from a rough filter, which is an enclosure of mud walls, roofed at about 3 feet from the ground, the roof made of beams, covered thickly with tamarisk boughs. On the top of this, earthy scrapings of the saline efflorescence that abounds in the immediate neighbourhood, are heaped to the depth of some 3 or 4 feet, lixiviated with water (somewhat brackish) raised by a Persian wheel, and the brine thus generated, drips slowly through the roof, and runs into the tanks, where it is allowed to settle and concentrate for a few days before it is used. The washed earth is removed from the filter, and

a fresh charge introduced as soon as may be necessary. Now the filter system is in use throughout India, but elsewhere the brine is run into huge lime-lined pans, or pans lined with stiff and thoroughly beaten clay. Here though lime is plentiful (indeed they have to put a thin coating of lime on the inside of the saucers to prevent percolation) they persist in sticking to their existing system. I expostulated with them, pointing out the great extra expense of the saucers and the vast additional labour entailed by carrying the brine in buckets, but all that could be got out of them in reply was, that it had always been the custom and no one cared to change it. They make probably about 1,000 tons of fair white salt yearly, but at a cost of at least £ 1 per ton, whereas, in other localities presenting similar facilities, it can be and is made for one-fourth that sum. It was nearly dark by the time, about 7¼ P. M., I reached the boat, and we then rowed hard, with stream, until 1 A. M., when we reached the southern mouth. By some mistake the big boats (the night was dark) had halted at a wrong creek many miles above, and it was 5½ A. M., before they turned up, and as the night was cold and the dew excessive, and we had breakfasted early and had made no preparation in the way of extra clothing or food, for bivouacking under the canopy of heaven, I ought, I suppose, to have been very uncomfortable, but somehow with the help of a few good cheroots made it out better than might have been expected.

12th.—During the day, there being no wind, we made considerable progress. We saw many black stork, geese, herons, and pelicans, and I succeeded in shooting one of the latter which turned out to be a splendid specimen of *Pelicanus crispus*, a species which I was the first to notice as occurring in India. The individual killed, measured 6 feet 2½ inches in length, 10 feet 2 inches in expanse, and must have weighed nearly 40 lbs. It was a male. I suppose that towards evening I must have seen close upon 500 of this species. They were busy playing, fighting, and fishing, and they kept uttering a harsh low cry, or croak I should perhaps call it, which exactly resembled the grunt of a buffalo.

Alas for the fallibility of human testimony! I gave a full account of porpoise-catching, by help of otters, on what I considered excellent testimony. Indeed, Capt. S., the local district officer, had himself confirmed the general accuracy of the statement, though he was not up in the details. It now turns out that the real truth of the story is this. The Mhors at night, when everything is still, listen for the tumbling of the porpoises: when it comes near,

they let the otter into the water. The otter hunts about like a dog, driving all the small fish in the neighbourhood towards the bank where the men are waiting, and which has been so selected as to have a depth of at least three feet close to the shore: the porpoise seeing the shoal of fish makes a dash at it, and is then secured by a net of the nature already described, but the use of the spears is imaginary. A couple of men or even a single man, easily lands the porpoise when he is once in the net. I think I have now got the correct account, as I had it direct from a most intelligent Mhor, who being a pilot belonging to one of the river steamers, talks intelligible Oordoo (with whom I could therefore converse direct) and who had got a full-grown trained otter with him, and was actually cooking a porpoise which he had caught yesterday and the head of which he produced. He utterly ridiculed the idea of a porpoise meddling with an otter, and said that for all their sharp teeth and pugnacious appearance, the porpoises were completely harmless and never even when captured attempted to bite. The otter is called by these people "Ludra," reminding one strangely of "*Lutra*." The species here met with is much smaller than that common in the Jumna and Chumbal

It was very pretty to see this thing (I mean the tame otter) playing with a pariah dog belonging to its owner, and to notice the extreme gentleness of the dog in dealing with it. The otter remains tied out in the sand all night, and if any strange dog or jackal threatens to approach it, the dog, so the master told us, rushes down on the instant and is ready to fight all comers.

The pelicans consume an enormous quantity of fish; the one I shot disgorged 9 or 10 fish, weighing from $\frac{1}{2}$ lb. to 1 lb. each, and the Mhors look upon them with as much aversion as a Norfolk squire does a party of scientific town poachers. My informant was very anxious that I should fire a rifle at the large flock to which I have already referred, but I had already one on hand, besides many other birds, which will sufficiently tax my taxidermist's power to-morrow, and I therefore let the proposed rifle practice stand over.

A grey lag goose I bagged to-day. Was one of the largest I ever saw, fully 23 inches long and 67 inches in expanse; but it weighed less than $8\frac{1}{2}$ lbs.

13th.—On the banks I shot a fine *Picus scindeanus*, a female, the third I have seen during this trip. It was busy with the stems of some large tamarisk shrubs, here some 15 feet high, and here also I shot a *Caprimulgus maharattensis*; *Chatterrhæa caudata*, *Burnesia gracilis*, *Drymoipus longicaudatus*, and *Otocompsa leu-*

cotis, which was, as usual, very abundant in the tamarisk. The latter bird has a very liquid musical song, some of the notes of which remind one strongly of the nightingale.

On the river, I succeeded in bagging a black stork. A party of four allowed me to come within 100 yards, and I brought one down with my duck gun, a very powerful weapon, a single 8 bore muzzle-loader, octagon breech, 44 inch barrel, which with 6 drams of powder, and a wire cartridge containing 100 BB, pellets, is strangely effective. Further on I came upon five pelicans as I thought *crispus* and *philippensis*. The latter, however, a single bird looked so large, that I picked it out and sent a ball through it at 250 yards. We rowed up to it, and then the four other pelicans came flying over again to see what was up. One which, from the apparently rosy tinge it had when sitting, I thought might be *Onocrotalus*, flew over within 80 yards; I gave it the duck gun and heard the shot hit it hard; it rose, then swooped for some 200 yards, and when within about 100 feet of the water, fell suddenly head-over-heels, splashing into the river like an aereolite. These birds both proved to be *crispus*, the former a young one, the latter an old female, without, when in the hand, the faintest rosy hue. I now believe that *all* the pelicans hitherto seen have been *crispus*.

During the day I saw several hundreds, but as No. 1 was not quite finished, and Nos. 2 and 3 were still to skin, I let them be. I saw a good number of cranes and killed twelve. Some grey lag, but failed to get within shot. No ducks. As for the common and white herons, I saw vast numbers. Green shank, a few. One large flock of *Tringa minuta*, of which I dropped six as they passed. Several times I have seen young *Circus aeruginosus* about the banks, and to-day I came upon one perched on a piece of brushwood stranded in a shoal, half a mile away from any land or sandbank. A magnificent pair of *H. albicilla* tempted me to waste a B B cartridge, but though the shot rattled like hail against the wide pinions of the female and cut out several feathers, she soared away apparently unhurt.

Until this day I have not seen a single gull. To-night, just at dusk, a vast flock of several hundreds passed overhead. They were far off, and apparently of different sizes and species. I particularly noticed one very black-headed *L. ichthyætus*; I missed or at least failed to drop him, but I got one with each of the following three barrels (the duck gun unfortunately was not at hand) and these all proved to be *Larus argentatus*, two adults, and one with the dark band still traceable towards the ends of the rectrices.

15th.—Reached Kusmore, our first point in Sindh, this day at

noon. Saw several *Lanius isabellinus*, one an adult male, with an unmistakeable white speculum. This species is much paler and greyer than *cristatus*. On the banks, huge grass tufts, 10 feet in height, the flower stems rising 8 or 10 feet higher, were intermingled with tamarisk and the peeloo, *Salvadora persica*. Amongst the grass innumerable little flocks of *Estrilda amandava* flitted restlessly about. *Pratincola indica* and *Otocompsa leucotis* were as usual abundant every where. The common francolin and the grey partridge were rather numerous, and I came across two parties of what I took to be *Chatarrhæa Earlii*; I failed however to secure specimens.* *Burnesia gracilis* was specially abundant. *Turtur risorius*, pretty abundant, and these were the only birds I saw in a three hours' stroll, except numbers of *Cotyle sinensis* on the banks which, here sandy and some 20 feet in height, are everywhere pierced with their nest-holes. The river was crowded with huge flocks of white herons of sizes, and spoon-bills, which always congregate in dense double or treble lines, like a regiment in close order; while the common heron, of which I saw some hundreds, were all dotted about like skirmishers. A strong wind was blowing, so that every bird stood with his head well forward, pointing in exactly the same direction, *i. e.*, in the teeth of the breeze, producing a very curious effect and making them all look still more as if they were under drill.

15th.—Marched about nine miles to Durkan, due west, on the Jacobabad road. The country level, sandy, intersected by irrigation channels, covered thickly with high tamarisk bushes, here and there interspersed with huge tufts of grass, and in one or two places varied with a few small fields. As for birds, a single buzzard, (*Buteo ferox*), a few *Corvus impudicus*, Hodgs., (no ravens) *Coracias indica*, *Dendrocitta rufa*, *Pratincola indica*, and *Otocompsa leucotis*, the two latter in great numbers, *Burnesia gracilis* and *Chatarrhæa caudata* were about all I saw, except one *Laticilla Burnesi*. These latter birds are very difficult to shoot. They keep very close in amongst the thickest grass, make only the shortest flights, drop instantly into the biggest tufts, and thread their way low down through the stems; it is next to impossible to flush them twice.

16th.—Marched 18 miles to Toj. Country much the same as yesterday, but barer. The low Bhooktee hills, bare stone heaps, showing throughout the march on the right. We saw numbers of *L. isabellinus*, *Otocompsa leucotis*, and *Pratincola indica*. Several *Buteo ferox*, *Collyrio lathora*, and *vittatus*, olim, *Hard-*

* As I never again met with this species in Sindh, I must probably have mistaken *caudata* for *earlii*, although this is almost incredible.

wicki, *Chatarrhæa caudata*, francolins and grey partridge, some houbara, *Dendrocitta rufa*, several small flocks of sparrows, in which a few *Passer salicarius* were intermingled, a few *Saxicola picata* (but no other wheatears) kites and neophrons, common crows, and a few ravens. A few *Burnesia gracilis*, and a party of *Acridotheres ginginianus*.

17th.—To Tugwanee, 16 miles. The country still much the same. For part of the distance the road led over vast plains, like the oosur tracts of the N. W. Provinces, very sparsely studded with the wild caper, *Cupparis spinosa*, a kind of acacia, and tamarisk. For part of the distance, there were dense thickets of high tamarisk trees, through miles of which we wandered carefully searching for birds. Very few species were to be seen. *Buteo ferox* was the only bird of prey. *Otocompsa leucotis* and *Lanius isabellinus* were very common. *Palæornis torquata* a few flocks, *Pratincola indica* and *caprata*, *Phyllopseuste neglecta*, *Collyrio lathora* and *Hardwicki*, *Chatarrhæa caudata*, *Acridotheres tristis*, *Ruticilla rufiventris* in the *Phænicuroiles* stage, *Pericrocotus erythropygius* and *Thamnobia*, probably *cambaiensis*, but showing a decided approach to *fulicata*, *Turtur risorius* and *cambayensis*, *Saxicola capistrata vel picata*.

18th.—To Hussen-ke-Ghurree. The country just the same as before, but the bare plains, the "phut" as it is here called, predominating. The birds similar to those of the preceding day, with flocks of starlings such as I have noticed on previous days, though I have forgotten to note them. I also noticed several *Saxicola Kingi*. Then amongst the trees here, I got two *Picus scindeanus*, both females. In the fields were numerous large crested larks, of which I shot several, *G. cristata*; we also shot some pigeons, *C. intermedius*. There were enormous flocks of crows and parakeets which came to settle on the siris (*Acacia sirissa*) trees here.

19th.—Rode into Jacobabad. The country slightly more cultivated than what we have hitherto traversed, but still retaining its character of boundless waste plains—here almost bare, here thickly wooded with tamarisk bushes and trees. The new feature in the march was that the road crossed two belts of bare shifting sand-hills, and in the neighbourhood of these, I saw and shot for the first time *Alaemon desertorum*. This bird, at a little distance, looks very white. It runs rapidly on the sand backwards and forwards, then stands quite erect, looking at one, then again runs away, turns and runs back—is apparently not shy. When at length it takes flight, the two white bars on the wing (so happily described by the name "*bifasciata*") are very conspicuous. The feet and legs are china-white, exactly similar to

those of the cream coloured, and Coromandel coursers. The feet too are short and unlarklike. No one can doubt that it is a modified *Galerita*, just as the coursers are modified plovers, and to my mind the reason of the legs of all having assumed this peculiar opaque china white aspect, is that this forms the best protection against the intense heat of the tropical sun-baked sands which they affect; near these I shot an *Ammomanes lusitania* (the first I have noticed since leaving the salt range) and saw several others. *Saxicola deserti*, (or *atroregularis*) and *picata* and all the birds previously noticed. At Jacobabad, I found the ravens very numerous, and saw several lying about dead, and Col. Phayre and many other officers remarked upon the curious fact that when the ravens first come in here (they are only cold weather visitants) numbers die, and again just as they are leaving, many die, and all seem to fancy that this is due to the heat, Jacobabad being about the hottest place in India except in the middle of the cold weather. As to the fact of their dying, I can testify; as to the cause of this strange mortality which invariably occurs every autumn and spring, I am entirely in the dark, but as many as a dozen may often be seen just when they first come in, lying within a circle of a hundred yards. Jacobabad itself is full of magnificent avenues of trees; its roads are laid out parallel, and at right angles to each other and very close, and each road, throughout the whole large cantonment, is bordered on each side by a row of lofty and umbrageous trees, and it is this grand collection of trees in the midst of a sort of desert and the abundant offal of a large cantonment that tempts, apparently, so many ravens to what is quite as unhealthy a locality to them as it is to human beings.

In these trees we got *Yunx torquilla*, and a *Brachypternus* which ought to be *dilutus*, but which in the absence of specimens with which to compare it, I should have called "*aurantius*."

Every one here declares that six species of sand grouse visit the neighbourhood. Specimens of three, viz *Pterocles arenarius*, *exustus*, and *coronatus* (a species now first ascertained to belong to our Avifauna) were brought me. Dr. Day brought me *Plocens manyar*, killed in some reeds, near Shikarpoor, also *Poliornis teesa* and *Halcyon smyrnensis* (the latter being very numerous, he informs me, we have seen very few as yet) killed between Shikarpoor and Jacobabad.

20th.—Jacobabad. I saw nothing to record.

21st.—Went out a few miles towards Dhoon. Swept round by Mummul and near Rojan, and again round to the north of the cantonment and then home. I never saw any tract of country

more destitute of bird-life. A few ravens, doves, wheatears, *picata* and *deserti*, *Galerita cristata*, and common sparrows, were almost the only birds we saw after we had got well clear of the trees of cantonment. A single kestrel, one or two common blue pigeons, a single common quail, and a very, few shrikes both *lathora* and *isabellinus*, the only other species, I can remember. We saw indeed two or three flights of sand grouse, *P. alchata*, high in the air, but they were too far distant to permit a successful shot.

22nd.—We got a fine specimen of *Brachypternus dilutus* which I certainly think is very doubtfully distinct. The number of ravens in cantonments is really very surprising. Towards evening, some of the largest trees are quite black with them. The extraordinary way in which numbers of them yearly die both when they first come in and when they are leaving, has already been noticed, but I may add here, that some people attribute this to the quantities of putrid fish they devour at these times. Sir William Merewether tells me that the flight and cry of *P. coronatus* are both quite different from those of all the other species. They have a curious fluttering flight, and appear often to hover in the air, especially before settling, and their cry is a twittering one.

23rd.—Rode out to Dil Morad, about ten miles on the Kusmore road, to get more specimens of the desert lark. We got four altogether, after very hard work, and these were all we saw after traversing some twentyfive miles of desert country, with a line some half mile long. We found them in every case solitary birds. About four or five miles apart, very tame, running exactly like coursers, unwilling to take wing. Very conspicuous objects, looking almost white in the sun light, and easily seen from a camel, at two or three hundred yards distant. There is plenty of similar sand desert across the Indus in the Roree sub-division, but Dr. Day, who has kindly been working that locality for me, never met with one; so too in Jeysulmeer and other portions of Western Rajpootana there are very suitable localities, but I have never seen one there, nor obtained any specimens thence. It seems to be only trans-Indus* on the skirts of large tracts of moving sandhills that are more or less connected with, or run down from the hills of Beloochistan and Khelat, that they are met with. Here they are found, not actually as far as I can judge on the absolutely bare wind-rippled, loose sand swells, but on the little level plains, scantily studded with low bushes (*Anabasis multiflora*,) that lie within and around these

* Since this was written, Dr. Stoliczka has obtained this species in Cutch.

hillocks, which for the most part run in waves, the crests occasionally rising 30 and even 40 feet above the general level of the country. The food of the desert lark consists, apparently, of seeds. I found no insects in their stomachs, only minute seeds, vegetable matter, and a grain or two of bajera.

Amongst these same bushes and in the same localities which the desert lark affects, are numbers of *Sylvia delicatula* conspicuous, as they flitter from bush to bush by their rufous tails. They are very provoking little birds, rarely seen on a bush but settling close by its roots, into which they run like little mice, no more to be seen till, kicked out of the bush, they take a tiny flight which ends at the root of some neighbouring bush before one has time to fire without (even with half a charge of dust shot) blowing their delicate little bodies to pieces. They have a tiny feeble song, something like that of the lesser white throat, whose flight theirs resemble, and which replaces them in these same bushes, directly you get half a mile away from the sand. When freshly killed, the irides are bright yellow.

The Lana and the Booe are here, as in the Punjaub, the favourite resort of the Houbara; but these, like the various species of sand grouse, appear to feed chiefly at this season, at any rate, on the leaves of the mustard.

The pintail sand grouse, *P. alchata*, it appears, often comes in vast flocks, whose numbers defy computation. They are seen first in the far distance like a thin cloud, and when they pass over one, which they will if you lie down amongst bushes, they positively darken the air, and 8, 10, 12 fall to a single shot.

At Dil Morad, I killed a couple of king-fishers which must really be *Alcedo ispida*. Length, 7·5; wing, 3; weight, 1¼ oz. Anyhow these birds are much too large for *A. bengalensis*.

We saw several *Cichloides atrogularis*, and shot three pairs of *Picus scindeanus*. These birds are almost invariably in pairs and always here in tamarisk trees. *Brachypternus dilutus*, on the other hand, seems always solitary (at this time of year) and generally in siris, (*A. sirissa*) babool (*A. Arabica*) or other large trees.

26th.—Rode out with Sir W. Merewether to the Noorwar canal and the fuel plantations (here called Bela) in its neighbourhood. In the canal the large *Alcedo* was so very abundant, that I saw probably fifty within the space of two miles. I shot eight. I find the females are only 7 inches to 7·3 in length, the males from 7·2 to 7·6. The wings average 2·9, one has them 3·0. They are all conspicuously larger than any *A. bengalensis* I can ever remember shooting, but without a comparison of specimens, it is impossible to feel certain what the

bird is. *Halcyon smyrnensis* and *Ceryle rudis* were also both common in this canal, and in one place two of the former, three of the latter, and two pairs of the *Alcedo* were all sitting within a length of less than 100 yards of the canal, which is a mere ditch, some 20 to 25 feet wide, thickly fringed with giant grass tufts, the flowering stems of which in some cases exceeded 20 feet in height, and acacia trees. Amongst the grass I shot several *Cyanecula suecica*, Linn., (*cærulecula*, Pall., apud Gray,) and some *Drymoipus longicaudatus*, a night heron, and a *Pycnorhis sinensis*, the latter being very common amongst the reeds. The common starling seemed very abundant, and indeed, ever since I left Jhelum, I have from day to day seen a few flocks.

At this time of year *C. rudis* is still everywhere in families of from three to five, the latter being the more common number.

Vultures are not at this time common about here, they are mostly away breeding, but I saw three or four huge birds of this genus this morning, apparently *fulvescens*, (nobis). Both black and grey partridge seemed common.

Jacobabad itself is really a wonderful place in its way. Some twenty years ago, there was only a wide nearly desert plain in which stood *one* siris tree. Now you have a cantonment, a square of some two miles, with innumerable roads crossing each other at right angles, and dividing the whole place into larger or smaller squares, each road with a thick avenue of high trees, and each of the squares thickly studded with trees, for the most part siris and babool, averaging some 40 to 50 feet in height, so that whether looked at from the plain, or from the summit of the late General Jacob's lofty house which is in its centre, the cantonment appears to be a dense forest of large trees.

27th.—Left Jacobabad early and rode thirteen miles to Humao. The road very good, what is here called metalled, *viz.*, covered some inches deep with long dry grass, which prevents carts sinking in the sand and also keeps the dust down. The country level, partly half desert, partly thin tamarisk, and camel-thorn jungle—very little cultivation. Close to the Humao bungalow, I shot a *Sylvia delicatula*, and saw several black partridges. In the afternoon rode on to Shikarpoor, another thirteen miles. For the first six miles, the road leads through a low tamarisk jungle, which swarms with black partridges; the latter kept running across the road every hundred yards. In a small tank by the roadside I saw, but failed to procure, a moorhen, and I shot a *Micronisus badius*. Not far from Shikarpoor I knocked over a splendid eagle, a rich deep hair brown, with the soft satiny

plumage, characteristic of a *Navia*, and upper tail coverts and rump richly spotted with buffy white, a larger and far more massive *Navia* than I have ever previously shot, not only a somewhat larger and longer bird, but a much more powerful one, though it is only 28·8 in length. The common pond heron and *Hirundo rustica* were pretty numerous.

28th.—Rode in the morning to Mungranee and in the evening to Sukker. Beyond Mungranee the country becomes more cultivated, and at Mungranee, for the first time in Sindh, I saw *Malacocercus terricolor*, Hodgs., (*Canorus*, Linn., apud Blyth.) In the large tiger grass tufts, *Chutarraea caudata* and *Estrilda amandava* were common to a degree. Doves, *risorius* and *cam-bayensis*, the common parakeet, (*P. torquata*), *Pratincola cap-rata*, *Coracias indica*, and mynas (*tristis* and *ginginiannus*) as well as black partridges were abundant. In little pools, *Actitis ochrophus* and *Iobivanellus goensis*, and the common pond heron, were almost the only birds seen. We shot a kestrel and a female *Micronisus badius*, and an *Haliastur indus*, the first I have seen since leaving Kusmore, passed over us. A few *Galerita cristata* and amongst the grass and tamarisk, numbers of *Drymoipus longicaudata* and *Burnesia gracilis* and common sparrows, while in the trees *Dendrocitta rufa* were particularly plentiful. We saw an *Elanus melanopterus*.

29th.—Sukker is a very remarkable looking place, built on a very low range of white bare rocky hillocks which extends for about a mile in length along the bank of the Indus. On the opposite bank are similar hillocks, on which Rooree is built, and in mid-channel are several islands, on one of which is built the fort of Bukker. The river has obviously burst its way through the range. Both Sukker and Rooree remind one more of Suez or Alexandria than of any Indian town I have yet seen. Rooree is about a mile higher up than Sukker, and the river bank opposite Sukker is densely fringed with date palms. Two steam ferry-boats ply between the two towns which are large and wealthy.

In the immediate neighbourhood we got *Brachypternus dilutus*, *Athene brama* (the first I have seen in Sindh) *Picus scindeanus*, *Pyctorhis sinensis* and a buzzard, *B. ferox*, of the dark type, which I named *fuliginosus*; a name, by the way, which even had the species been, as Brookes and others still think it, a good one, could not have stood, having been previously assigned by Selater to some Mexican bird. Here I received the birds collected for me by Dr. Day, chiefly in this immediate neighbourhood and the Rooree sub-division. Some 84 species, of which the most noticeable are a rock pigeon, apparently *Columba livia*, *Querquedula angustirostris*, *Botaurus stellaris*,

Porzana maruetta, *Hydrochelidon indica*, *Falcinellus igneus*, *Phyllopseuste neglecta*, and *Laticilla Burnesi*.

I also here met my collector who came down the Indus from Kusmore. He has brought numerous other birds already met with, but the only ones deserving notice are other fine specimens of *Larus argentatus*, and a splendid adult *H. albicilla*.

There is a high stone tower here, of which the natives tell an absurd story. A certain wealthy trader had long pestered with his addresses a lady of his own caste. This was of course in old days, such as those to which the Sakoontala introduces us, when men and women chose their own life partners, and were not, as now, married off by their parents while still mere children. Wearied by his importunities, the damsel at last promised to marry him if he would endow her with all his property and do two things that she would enjoin upon him. This most unbusiness-like bunniah lover was overjoyed (so the story goes, but I don't believe it, if you do.) Repairing at once to the necessary authorities, he made over to her formally all his property, and presented himself to her the very next day to learn what were her further behests. Now the lady never for a moment intended to marry him, and had fondly imagined, for she didn't know her man, that he would rather resign his pretensions to her hand, than the money he had so long and patiently toiled to amass. At first she was rather nonplussed, but after a minute's thought, requested him to build a stone tower on the highest point in Sukker, a hundred cubits high. This she thought would at any rate defer the evil day for some years and give her time to devise some plan for escape. She did not however yet know her man. Within a week relays of workmen, the best the country could boast, were toiling night and day at the appointed task, and within a month the ardent swain again appeared to announce the completion of the tower and to ask for her final order. Quite confounded at this unexpected and sudden return to the charge, the lady could only falter out, "The tower is finished, is it? Then the only thing remaining for you to do is to throw yourself off the top of it!" It is lamentable to have to record that straightway he went and did as he was bid, being consequently "broke all to little pieces," so that nothing more remains to be said about him, while tradition has indignantly ignored the lady's after life. We considered this pathetic case most patiently, in solemn conclave, at the base of the tower, and then unanimously returned a verdict of "sarved him right"—first because he was manifestly and transparently a hopeless idiot unfit to live, and secondly because he palpably tried to cheat the lady, the tower *not* being a hundred cubits high

and not (to our idea) being built on the highest point of Sukker.

30th.—Rode out to Rowajee, about three miles from Sukker, where there is a large lagoon or, as they here call it, a *dund*. This piece of water is occupied by a number of fishermen, “*Mokanehs*” who live in their boats and subsist entirely on the fish and wild birds they catch. They eat pelicans, herons, and cormorants, (both *carbo* and *javanicus*,) and every boat has on it one, two, or more of each of these alive and fattening, all blinded, but thriving. They catch the pelicans and other birds in a curious fashion. They skin a pelican carefully, and stuff the neck and head in excellent style, and put the skin of the body in position by a light bamboo framework, only removing the legs and most of that portion of the skin, that in swimming is concealed by the water. Then with this on the head, they move about in the water, keeping their head-piece in precisely the position that the living bird would swim in, and thus, unsuspected, find their way amongst wild fowl, &c., which they capture, seizing even pelicans, they pretend, in this way by the legs. All the pelicans they had alive, some twentyfive in number, were *crispus*, but they told us that there were two other kinds, both more or less pinkish. On this lagoon I saw several terns, *javanica*, *aurantia*, and *anglica*, Mont. (*nilotica* v. Hasselq. apud Gray) the latter the first of its kind I have seen since leaving Jhelum. In trees near this lagoon were numbers of *Brachypternus dilutus*, of which we shot five, and several small flycatchers, of which I procured two, which proved to be females of *Erythrosterina parva*. *Pericrocotus erythropygus* we also saw. I forgot to note before, that we saw at Jacobabad a bittern and a flamingo, (*P. antiquorum*,) that had been killed there, and that they are at certain seasons not uncommon in ponds, &c., in the neighbourhood. On the lagoon we noticed a snake-bird (*P. melanogaster*), and we also saw a young moor buzzard (*C. æruginosus*) of which, by the way, we have seen two or three lately.

31st.—The people brought in several specimens of *Aythya nyrocea* which, with the common teal and the shoveller, seem very abundant in Roree, also *Phyllopeste tristis*, *Chiquera typus*, *Pyctorhis sinensis*, and some other birds already noticed.

1st January.—Returned to Shikarpoor. Just at starting, the people brought in from the Rooree district a number of common teal, gadwal, shovellers, and pintails, and one fine *Querquedula angustirostris*, which they say is very common, especially in the early part of the season. En route, we killed a number of birds, *Falco jugger*, several water-hens (*chloropus*), *Cyanecula suecica*,

black partridge, stone chats, *Picus scindeanus*, *Budytes citreola*, and *citreoloides*, and *Agrodroma campestris*. At the Mungranee Bungalow, I saw *Yunx torquilla* in the high grass. In its immediate neighbourhood, numbers of both *Ploceus manyar* and *P. bengalensis*, and *Laticilla Burnesi*; the latter to-day, I am bound to say, gave me more the idea of babblers. I also shot one *Tephrodornis pondiceriana*. A bird that I did not recognize, struck down a heron in splendid style, some three hundred yards off us, in high jungle, but though I tried hard I could not find either the hawk or its prey, as the cover was too dense for camels to make any way through it, and on foot it was impossible to see a yard before one.

2nd.—Dr. Day killed a fine peregrine close to the station and a couple of *P. scindeanus*, and one of my shikarees whom I had left behind at Mungranee to get some more *Laticilla Burnesi*, returned with eight of them.

3rd.—To Gaheja, 14 miles on the road to Larkhana. We saw nothing but *Brachypternus dilutus*, near the station, *Lanius isabellinus* and a Pipit (*A. spinoletta*,) several vultures of which we did not shoot any, and heaps of *C. caudata*. Here and there, there was cultivation, but for the most part the country we traversed was sandy and barren-looking, thickly studded with large caper bushes.

4th.—To Ruttadera, about 14 miles. The country comparatively well cultivated in patches, but a great deal of it waste land, covered with caper bushes. The only noticeable bird I saw was a huge eagle, nearly black, with the head lighter, but with no white shoulder spots and larger than any imperial eagle I have ever seen; I examined it carefully with a glass at about 70 yards distance, but could get no nearer, and with my small gun could do nothing. Numbers of *C. caudata*, *saxicola*'s, of sorts and *B. gracilis*, but nothing else.

5th.—To Larkhana, 19 miles, halting for breakfast at Mahomed Bukar-ki-Gharee. Saw another of these eagles, possibly *chrysaëtos*, a young one in the purplish golden plumage, with the white bar on the tail. It kept flying or rather circling slowly round and round over our heads at the height of about 60 or 70 yards for full ten minutes, but there was no getting a shot. I saw *Saxicola Kingi*, *S. delicatula*, *T. pondiceriana*, *P. perigrinus*, and numbers of the cattle heron in a marshy spot. The small egret in another place; *Lobivanellus goensis* and *T. ochrophus* everywhere common in these parts near any water. We saw a huge flock of *Ploceus manyar* and *bengalensis*, and dropped nine at a shot. All proved to be males. It is curious that when we shot seven or eight out of a flock at

Mungranee, all proved males. Where are the females?

6th.—At Larkhana, a pretty little station, just three or four houses on the banks of a broad canal, with numbers of large peepul and other trees. *B. dilutus*, very abundant. *H. leucoryphus* and *H. indus*, several pairs—*Tringoides hypoleucos*, *T. ochrophus*, and *C. rudis*. *A. ispida* and *H. smyrnensis*, common in the canal, and from a hole in a huge peepul tree we dislodged and shot a pair of *Strix indica*. *Merops viridis*, pretty common. In the evening, walking by the canal bank, we saw a number of night herons and shot a pair of *Athene brama*, and *Butorides javanicus*. The latter seem very crepuscular in their habits. It was just sun-set when we saw the first creep out of the stack of brushwood, where it had apparently spent the day. On our approaching it, it ran back to its hiding place from which it did not emerge for some minutes. We saw at least half a dozen others appear from and disappear into similar hiding places. From 7 o'clock this morning, one or other of us and our shikarees have been along the canal without seeing one.

7th.—14 miles to Kumber, where we breakfasted. The road led through cultivated lands, wheat and rice, and swamps now nearly dry, and paved with dead rushes. In the young wheat fields we saw flocks of *Chettusia gregaria*, and in the swamps *C. leucura*. Mallard and teal, and *ispida*, *smyrnensis*, and *rudis*, extraordinarily numerous. *Herodias alba* and *garzetta*, *Ardea cinerea*, *Totanus fuscus* and *glottis* or (*canescens*,) and *Limosa egocephala*, abundant. *Turtur risorius* and *cambayensis* and a few *humilis*—*Poliornis teesa*, and buzzards of every shade of colour from the deepest chocolate, with a purplish bloom, only relieved by the white patch on the under-surface of the wing and broad grayish white bars on the tail, to an almost white bird variegated with reddish fawn on the wings, mantle flanks, and abdomen. Eagles of many kinds were seen. A very fine *Pseudacetus Bonellii* was killed as well as others, *nevia* and *imperialis*. On the branches of numerous ragged-looking mango trees, dotted and clustered here and there amidst the rice fields, I noticed several small parties of pigeons, which on a closer approach proved to be my old Punjaub friend, *Palumbæna Eversmanni*. They were unusually shy, and I only secured some half dozen specimens.

Starlings were very numerous, and we saw here, as at Jacobabad, a few rosy pastors. The stock doves appear to be only found in Sindh, in the rice districts, and are never seen in Rooree. In the afternoon, we came on eight miles to Dost Allee through perfectly level, more or less saline, inundation land, quite bare or more or less thickly covered with comparatively stunted tamarisk bushes; in one place where these were rather thick,

we found a flock of at least forty *Edicnemus*. In a pond we killed a small crane, undoubtedly *minuta*, Pall., of Europe, now for the first time, I believe, recorded from India, and several common water hens.

8th.—Visited a large dund or jheel, surrounded by tamarisk bushes, at Dost Allee.* We observed numbers of large Raptors, *Aquila imperialis*, and *naevia*, *Milvus major*, several chocolate brown Buteo's, an osprey, marsh harriers, *Speudaetus Bonellii*, and *Haliastur indus*; waders, flamingoes, herons, *Ardea cinerea*, and *purpurea*, *H. alba*, and *garzetta*, *Ardeola Grayii*, *Nyctiardea nyctiorax*, *Limosa egocephala* in great numbers, of which I shot 16 at one shot, *T. ochrophus* and *fuscus*, *Falcinellus igneus*, in huge flocks, and *Numenius lineatus*. Of ducks there were mallard, common teal, shovellers, gadwall, *Aythya nyroca*, *Fuligula rufina*, pintail, the ruddy shelldrake. Then of gulls and terns, *Larus argentatus*, *ridibundus*, *Sylochelidon caspius*, *Gelochelidon niloticus*, *Seena aurantia*. Every where perched on dry grass stems, far into the centre of the lake, were *Pratincola leucura*, continually darting down to the water, and seizing insects on the dry lotus leaves and on the water itself. Scudding along over the surface with tiny hurried flights, tripping along on the dry lotus leaves and stems, swimming from stem to stem, was *Porzana minuta*, Pall., in considerable numbers. *Hydrophasianus chirurgus* in winter plumage. In amongst the roots of tamarisk bushes, standing in swamps amongst clumps of tiger grass, I shot with great difficulty a bird answering well to Jerdon's description, of *Platypura schœnicola*; the bill is not however at all deep, and the length is 6.4; with these exceptions, the description and measurements, fairly correspond. The bird is, however, clearly Cetti's warbler. *Acrocephalus brunescens*, all three king-fishers, innumerable coots, and water-hens, all apparently *chloropus*. Of mynahs, *Acridotherus tristis* seems very rare; *ginginianus* very abundant.

We also shot two *Querquedula angustirostris* and plenty of common and jack snipe.

9th.—To the same dund again. The only birds new that we saw were the little bittern, *Ardetta minuta*, the bittern, *Podiceps minor*, *Lobivanellus goensis*, *Laticilla Burnesi*, and *Centropus rufipennis*. I secured more of Cetti's warbler, and such a difficult bird to shoot I never met with. It never flies: it never comes out to the light of day, but only creeps about the roots of tamarisk and tiger grass where these stand thick and dense, in swamp and water. We killed 14 of the marbled ducks, numbers of teal, mallard, gadwall, *Aythya ferina*, *Fuligula cristata*, and *rufina*, *A. nyroca*, *Larus argentatus*, *Pratincola leucura*, and one *Sylochelidon caspius*. Also a magnificent flamingo (*P. antiquorum*),

with about the most brilliant wings I have ever seen.

10th.—Marched to Guibee Dehra ; by the circuitous route we took, about 20 miles. After a few miles we got out of the inundation land, on to the “*phut*,” the higher plain, very bare and barren, where the tiger grass disappears and the tamarisk is infrequent and stunted, and the caper and jhund, *Acacia leucophlœa*, are almost the only plants to be seen. In the caper, *S. delicatula* is abundant, as also *Ruticilla rufiventris*. I shot one of a pair of starlings which must, I think, be distinct, much purpler and smaller than the common one of which I saw none.

11th.—In the dund at Guibee Dehra, which densely covered with sedge, looks like one vast grass field, with a few very narrow lanes of open water, we found *Sylvia melanopogon* very plentiful, a few *Acrocephalus agricolus*, and *brunescens*, *Porphyrion neglectus*,* Schl., coots and water-hens, and ducks of all descriptions, and amongst others *Q. angustirostris* very numerous. The latter seemed to *lay* in the thick of the grass, and while other ducks rose at two and three hundred yards on a gun being fired, these generally kept quiet until the boat got within 60 or 70 yards. They seemed the least wild of all the species. There were several bitterns, and in the bushes round and in the dund, *Phyllopseuste tristis* and *Sylvia curruca*, (?) *affinis*, seemed common. The country for miles all round the dund and the village, which are some two miles apart, is almost a desert, perfectly level and thinly studded with caper-bushes, in which grey partridge and hares were numerous.

Two of the blue-browed rock grouse, *Pterocles senegallus*, were brought in from a place some 30 miles north of this, near the foot of the hills. This species seems to confine itself to the kuller or saline lands near these latter, and to visit but rarely the flooded or inundation lands.

12th.—Dr. Day started off for *Duryalo*, the highest hill in the range dividing Sindh and Khelat ; from near the base of the hills he sent me back specimens of *Alaemon desertorum* and *Saxicola Kingi*. *Sylvia delicatula* flutters about, white throat-like, in the jhund (acacia) trees, between our tent and the Government rest house. At the dund I shot pintail, mallard, marble duck, numbers of *S. melanopogon* and blue throats ; yellow-headed wag-tails (both *citreola* and *citreoloides*) very numerous.

13th.—Marched half way to Hummul, the country for the most part hard waste, and studded with caper bushes. Here and there

* This is the name assigned by Mr. Gray to our Indian bird ; Latham's name *poliocephalus*, which Jerdon adopts, being assigned to the Philippine and Madagascar bird.

we crossed the ends of tongues of drifting sand hillocks, running down from the foot of the hills, and on these we saw several desert larks. Nearer to and at the foot of the hills, *Ammomanes lusitania* was very common.

In the immediate neighbourhood, and everywhere east, of our tents, is a quantity of sirson, a mustard-like plant grown for the oil which its seeds yield. The people do not take the trouble to plough the land to sow this; when the inundation subsides, and the soil drying cracks, they simply throw the seed into these cracks. In and about these sirson fields, if I may so call, the irregular patches of cultivation of all sizes and shapes, were numbers of *Cichloides atrogularis*.

In the afternoon I travelled over some 15 miles of country lying between us and the hills, north and south, including that tract in which I shot the three desert larks in the morning and only saw one more. These birds seem always solitary and very thinly scattered. Their chief food seems to be the seeds of the lana, and their invariable haunt bare drift-sand swells and hillocks, about the bases of, and in between which are a few lana bushes. I saw two or three houbara, and I may mention, that generally all along within 15 miles or so of the foot of the hills from Jacobabad, as I am informed right down, to the sea, the houbara is pretty plentiful, though not nearly so numerous as it is in parts of the Punjab, near Fazilka, of the Sirsa district for instance.

14th.—Marched to Hummul. In the sands near the foot of the hills, killed two more of the desert larks; as usual, solitary birds, a couple of miles or more apart, and both males. It is curious that out of the 13 birds I have as yet seen and killed, 10 have been males. Later in the day I went on to the dund, where the marbled ducks were in thousands, mallard, gadwall, white-eyed ducks, the common, and little cormorants, herons, white, common, and purple, *Larus argentatus*, shovellers, coots, and water-hens, innumerable marsh buzzards, all young ones, eagles, Bonelli's, and others, a couple or so of brahminy kites. The little grebe (common on all the dunds I have yet visited), purple coots with the loud flap, flap, flap of their heavy wings and common coots with the tit, tat, tat, tat of their clumsy feet along 20 yards of the water as they rise. Water hens swimming off with perpetual perky-cockings of their little white-picked-out tails. A heavy looking gull comes past, and at a shot whirls down, round and round, hitting the water with a splash that may be heard half a mile off, and straightway all the gulls in the neighbourhood, regardless of guns and boats, appear close over head, wheeling round and round, apparently to ascertain the cause

of this most unusual and unbecoming proceeding on the part of their fallen comrade. We don't want any more specimens, so we allow them to look on unharmed whilst the bird is secured; until his snowy whiteness and delicate satin-greyness, all unstained, and the requisite cotton introduced into his mouth and nostrils, he is laid out in state, on a broad clean towel, beside an enormous Bonelli's eagle, and a dozen lovely ducks, of all shades and shapes. Then they sail solemnly away.

15th.—On the dund again. Saw a very fine osprey, large flocks of *Chettusia leucura*, and very many *Acrocephalus brunescens*, climbing about, not on reeds, for there were none, but on the tamarisk bushes standing in the middle of the water. Bonelli's eagle very common, and so tame, that one positively sat still and let me inspect him from a boat not ten yards from his perch. The quack or note of *Aythya nyroca* is peculiar, and is a harsh kirkere, kirk, as they rise out of the rush quite close to one. The gadwall seems the commonest duck in this dund, or at least as common as the marbled and white-eyed ducks. Saw a *Picus scindeanus* on the tamarisks on the bank.

16th.—On to Shah Godria, eight miles, through the (at this season at any rate) desolate waste lying at the foot of the hills; the whole country is, however, intersected with long lines of raised banks which serve when any rain falls on the hills (which it has not hereabouts for some two years) to retain the water, and then large crops of jowar, *Holcus sorghum*, are raised, and the villages (many miles apart) now all but deserted are re-populated. En route killed a fine male saker, sitting on a little earthen mound. This species is at a little distance only to be distinguished from the lugger, by the much greater amount of white in the tail. Peer Godria lies within the outer range of coarse conglomerate rocky hillocks that skirt the bases of the main range. In the wide sandy valley that intervenes between these latter and the hillocks and in and around these, *Saxicola Kingi* and *A. lusitania* are common. At Peer Godria we found that no grass was to be procured, let alone milk, or food for the servants. So in the afternoon we moved on to Mado, over an utterly desolate looking plain, on a dry stalk in the midst of which we saw, but failed to secure, a small owl, perhaps *brama*. Mado is situated in a vast entirely bare plain, not a vestige of any plant, bush, or shrub to be seen now, yet, in certain seasons and years, this is nearly all covered with the giant millet.

17th.—North-east of this, saw a few sand grouse. The only one secured was a male *exustus*. Sitting here at the tent, the mirage is so strong, we seem to be on a low flat sandy island surrounded by a lake of placid water, in which distant bushes and trees

(such as they are) appear reflected, and men, cattle, and camels moving in the distance appear to be wading. In the afternoon went on the large dund, which begins about two miles east of this. For fully half the distance between the camp and the broad (as we should call it in Norfolk) the level waste is transformed by irrigation into a sea of young wheat, stretching, apparently, for miles north and south. On the dund I shot *Larus ridibundus* and *L. bruneicephalus*, at least so I identified them. I saw also *Seena aurantia*, *S. caspius*, *G. niloticus*, and *L. argentatus*, myriads of coots, and heaps of ducks, including numerous *angustirostris*.

18th.—On the dund again ; saw flamingoes, spoonbills, white herons, of sizes, in myriads, *S. caspius*, and *Hydrochelidon indica*, purple coots, and pelicans. Of these I dropped seven with a right and left, but only brought five to book, the other two having swam away out of sight.

19th.—On the morning worked the plain between us and the hills and brought in seven sand grouse, *P. senegallus*, three males and four females. These birds closely resemble *P. coronatus*, of which I got one specimen from Loch at Jacobabad, but the eyebrows are less blue, the crown wants the vinous fawn tinge, there are none of the three black streaks, and the upper plumage also differs somewhat. Later I again visited the dund, where I secured the remaining two of the seven pelicans, I knocked down yesterday. Of the five stuffed yesterday and this morning, four were rosy adults; crest moderate; total length, from 56 to 61 inches, what Jerdon would call *Javanicus*; all females. The other considerably larger, quite a young bird, brown and white, was a male. The two got to-day were one very rosy, length 60, with a long crest, (what Jerdon would call *mitratus*,) sex female; the other much less rosy, no crest, 72 inches long, with a huge bill (what he would call *onocrotaius*,) sex male. Now the bills of all are precisely similarly coloured, and no one looking at them fresh could doubt that all these birds belong to one and the same species.

I shot a *Gelochelidon niloticus* and several gulls, *L. argentatus*. In a reed bush where I lay waiting for some time, *Acrocephalus brunescens* was very abundant, running up and down the reeds, and picking insects rapidly off the stems. The note is harsh. With these were numbers of *P. tristis*, which equally busy in picking insects off the leaves, every now and then flew up into the small clouds of midges that floated above the reeds and hung hovering in them, snapping right and left, with the utmost rapidity. Many more of the yellow-throated sand grouse, *P. senegallus*, brought in.

Dr. Day who went to near Duryalo, from Guibee Dera, return-

ed and reported that, before getting quite up to the hills, they saw several desert larks, four of them appeared to be in pairs, and one lighted on a bush! Inside the first low range, they found *Saxicola Kingi*, *Ammoperdix Bonhami*, *A. lusitania*, and several *Sylvia delicatula*. Also noticed both immediately inside the first range and in the interior of the hills, large flocks of a white-backed blue pigeon similar to the pigeon which he brought me from the sand hills of Rooree and which is, I consider, *livia*. *Otocompsa leucotis* *C. caudata*, the lesser white throat, and *R. rufiventris* and black and white wheatears were also noticed. This was during the first march to Seeta, 24 miles. The next day's march was to Peer Bungla, a rise of a few hundred feet. Common redstart, an *Alcedo*, Bonham's partridge and chickore were the only birds noticed, besides those already mentioned. The next march was to Meera, height about 3,500 feet. Here Dr. Day observed all the birds already mentioned, excepting *Sylvia delicatula* and the pigeons; and he shot in an acacia tree there one of a little *Sylvia Melizophilus** *striatus*, as I propose to call it if new, and a *P. neglectus*. Later he got another of these little *Sylvias* in a bush, and a third in a low tree about the same elevation near water. He saw ravens, a pair of lammergeyers, a kestrel, and a few of my pale crag swallow which is, however, uncommon so high up as this and more common lower down. On the way back at the Muzaranee Nuddee, they saw numbers of this crag martin, *Lanius isabellinus*, and most of the others already mentioned. Between Aree and Peer Godria, they obtained a night heron.

The natives said that a huge black wood-pecker, with a red head comes at certain seasons to the trees near the top of Duryalo. This must apparently be *Dryocopus martius*.

At the highest point at Duryalo, is a tomb known as *Kutē ka kubber*, the dog's grave. The legend attaching to it is curious; it is one that in different forms plays a part in the traditions of every section of the Aryan race. An inhabitant of the hills, near Duryalo, coming down to the plains to borrow grain from a merchant there, left as his pledge, a favourite and *peculiarly* intelligent dog. When he first offered the dog as a pledge, the trader laughed at the idea. "There is no scarcity of curs in this country yet," he said, "what good will the brute be to me?" but at length the hill-man so expatiated on the extraordinary merits of the dog, that he accepted it as a pledge and gave the grain. "Stay here," said his master "and see that no harm befalls my friend or his goods, until my pledge is redeemed." The dog wagged his tail, sat down at the door of the house, and his master went

* Subsequently obtained by Capt. Cock in the salt range, and published by Mr. Brooks under this very name.

his way. A few days only had elapsed when thieves attacked the Bunya's house at night and robbed him of all his valuables. The dog fought gallantly and bit several of the robbers, but he was ultimately knocked over, and they made good their escape. As for the Bunya he pretended to be asleep until quite sure that the thieves were well out of hearing; and then shouting vigorously he rushed out sword in hand, and all but slaughtered the village watchman who had also just made his appearance. Now it happened that in those days (we never fortunately hear any thing of this kind now) the thieves and the Police were very often the same people, and so it had happened in the present case. The dog had recognized them. Early in the morning he went on their tracks, smelt out every place where the property was concealed, dragged his master some miles across country to the Rajah, dragged the Rajah, who went on account of the novelty of the thing some miles further to where the Police were stationed, pointed out where the property was concealed in and about their houses, then rushed off home and returned with a number of pieces of cloth which he had bitten out of their clothes, which of course exactly fitted and matched, and to cut the matter short so comported himself as to secure two desirable results, the restoration of all the property and the decapitation of all the Police.

If only this latter good old custom had survived to these degenerate days ! it is no use, however, wishing for a breed of similar dogs as Superintendents of Police ; high or chief Courts now-a-days require better evidence than *any* poor dog can get together !

Well, the merchant was overjoyed, and on his return said to the dog "truly you have redeemed your master's pledge. I give him the grain, you may go and tell him so." The dog bowed politely three times, wagged his tail twice, and disappeared. It was evening when after a fifty mile run, the poor weary, faithful dog, met his master half way up Duryalo. The dog was overjoyed, but his master who having recovered a debt due to him was on his way to repay the merchant, was furious. "So wretch," he gasped out "I trusted my honour to you, and you have disgraced me ; my pledge is broken—die !" and with one blow of his heavy axe he cleft his skull asunder.

All the long, hot, dusty journey to the merchant's house, was to the Hill-man longer, hotter, dustier, than it ever yet had been to mortal man ; he had killed his best friend ; it had no doubt disgraced him, but why had he killed it ? he had no wife, no child ; who cared for him ? what did he care for ? save this one friend, now doubtless, eaten by the

jackals, and when he reached his journey's end and learnt the truth, no words could express his remorse; he hurried back, found the body of his too faithful companion, untouched by bird and beast, and urged by some such feeling as that which made the "early Persian choose some earth o'er gazing peak, as his most fitting altar," carried the body up to the topmost height, and there built over it a tomb, to point a sad moral to the tale, and warn, but warn men vainly, against hasty and irrevocable acts.

20th.—There are numbers of marsh harriers, about here, and indeed about almost all the broads we have visited, but the curious thing is that though I have seen hundreds of young birds, I do not think I have seen a single adult. The same is the case in England and some parts of Europe, and is another illustration of that well-known, but not fully explained fact, that the young of many species, regularly and yearly, extend their migrations to districts and even provinces, which as adults they never, except quite as an exceptional case, re-visit. On a tiny grassy islet, only a few yards square, I saw a magnificent adult, *H. albicilla*, and two young ones, fighting with two Imperial eagles over what proved to be the dead body of a cormorant! I got within about 60 yards of them and fired my long 8 bore, with $2\frac{1}{4}$ ounces of double B at them, and positively knocked the whole five of them over; but they picked themselves up and flew away, only one of them seemingly the worse, before (the weeds were terribly thick) I could push up near enough to hurt them with my double gun which was loaded unfortunately with small shot. There were enormous numbers of *Aythya ferina*, at several dense patches of which I got good shots, bagging a great many. Lots of all kinds of duck, terns, gulls, and waders.

21st.—Marched 22 miles to Gool Mahomed. On the road saw several flocks of *Pterocles senegallus*. They have a peculiar cry just like that of a child's toy. We also saw and shot some *exustus*, but these were much less numerous than the former. We shot two desert larks, but there was nothing else very noticeable to record.

* 22nd.—We all went out shooting, and Watson killed a pair or *Pterocles Lichtensteinii*, a bird new to India, and the first I ever saw in the flesh. I killed a desert lark, and in the little patches of sirson (a kind of mustard) lying far out in the waste, I killed 10 of *Bucanetes githagineus*, the desert bullfinch, another bird new to our Indian Avifauna. From Sindh to the Canaries! what a range for such a species.

These birds look at a little distance for all the world like spar-

rows, and have doubtless often been overlooked. They were feeding entirely on the ground, and never once perched on any bush, though occasionally they perched half way up on the mustard plants, and often sunned themselves on the raised earthen banks, by which the country is divided into large squares, and the rain water, when rain *does* fall, prevented from running off. *Sylvia delicatula* is very common everywhere here.

23rd.—Marched to the Gaj, or at least to where this river which rises in Khelat and comes through the hills, debouches from the outermost range of these. For four or five miles, we came through a thick peeloo jungle enclosing several hamlets and a good deal of cultivation, due to the water of the Gaj, beyond that we have for two or three miles a bare plain of rolled boulders, sloping gently up to the foot of the first or outlying ridge of the hills. This plain is absolutely bare and except *Ammomanes lusitania* and *Galerida cristata*, showed no single bird. In the peeloo jungle, a large blue pigeon, very pale and with an almost pure white back, seemed common, and I also saw several *P. scindeanus*. The outer ridge of the hills consists as at Peer Godria, of a conglomerate of water-worn stones and boulders, a large proportion of which are numulitic limestone, such as is found *in situ* further in, in the hills. This outer ridge must therefore, geologically speaking, be of comparatively recent upheaval. About this ridge *Ptionoprogne pallida*, as I propose to call the new pale crag swallow, is remarkably abundant. I failed to see any other species.

In the more cultivated parts, nearer our last encampment, *Saxicola deserti* and *picata* were common, and here in the hills I find what looks wondrous like *Saxicola monacha* and another large black and white wheatear. It is curious that I have not seen a single *S. leucura* or *opistholeuca* any where in Sindh.

24th.—Marched some six or eight miles up the valley of the Gaj through the hills, passing three other ridges besides the first. They consist of very friable red and earthy-coloured sandstone and yellow clay. About these hills *Saxicola Kingi* was very abundant, ditto *A. lusitania*, and there were a few *R. rufiventris*, and these were the only birds seen in the bare desert parts, but in one place where the valley encloses a broad strip of cultivable land, part of which is now in wheat and parts have lately had jowar, there were numbers of large blue pigeons, (some *intermedia* some *livia*, and some betwixt and between) *Coracias indica*, &c. In the tamarisk and jhund bushes, were numbers of *Arachnechthra asiatica*. In the Gaj itself I shot a brace of *Q. angustirostris*, the only ducks seen, and a very fine black stork, one of a party of five. I saw also a common green shank, and a common sandpiper.

25th.—Marched 16 miles to Pande-jee-wahya, near the mouth of the Narree Nai. Saw nothing en route except numerous large flocks of pigeons going down from the hills to the plain land to feed, and the usual *A. lusitania* and *G. cristata*. Stonechats and wheatears, &c., but we picked up sixteen *B. githagineus*, killing them in the same kind of fields as those in which I obtained the first specimens.

26th.—Marched 17 miles up the Nurree Nai, through numerous low ranges, none rising I suppose above six or seven hundred feet above the plains, to the foot of the main range, here perhaps about 4,000 feet high. Everywhere along the bed of the streamlet, (which here and there expands into tiny, clear, deep green tarns densely fringed with bull rushes) and about the numerous small wheat fields, which occupy every little culturable flat in the stream's tortuous valley, *Ptionoprogne pallida* abounded. Here and there on the bare rocks, *Petrocosyphus cyanus* was met with, while about the pools a single *H. smyrnensis*, *C. rudis*, a common heron, three *Alcedo ispida*, and several *Plotus melanogaster* were seen. I shot a solitary female *Aythya ferina*, and saw four teal. Two eyries and two pairs of Bonelli's eagle were seen (I shot one of the latter.) *S. Kingi* and *A. lusitania* very abundant, a few large black and white saxicolas and one *monacha*. Here, as elsewhere, the outside ranges are conglomerates of water-worn boulders, of numulitic limestone and sandstone, with here and there scoria and lava, the next ranges are sandstones more or less friable, but inclosing wide bands of very hard and compact sandstone, and yellow and reddish marls, while the main range appears to be numulitic limestone, underlaid by triassic rocks.

27th.—Back to Pande-jee-wahya, the pale crag swallow, as numerous as yesterday. No new birds except a fine dark buzzard, *B. ferox*. Just at the mouth of the Nai, a lammergeyer, and a female *C. Swainsoni*, and just outside the mouth, I shot a fine *imperialis* in the uniform dark stage. Near the mouth where there is a little water and some fields, I got two pairs of *B. githagineus*. The large black and white wheatears hereabouts strike one as singularly pure in colour, they should be compared with *picata*.

28th.—Ten miles to the south-west corner of the Munchur lake at Shah Hussein, which overlooks part of the lake. Walking along the shores, saw several *Recurvirostra avocetta*, flamingoes, *L. agocephala*, *Tadornas vulpanser*, *Anastomus oscitans*, *Mareca penelope*, and on the water, mallard, *Aythya ferina*, and *nyroca*, *Faligula cristata*, *L. ichthyactis*, and all the other water birds noticed elsewhere, *S. caspius* being particularly numerous. I find that the black and white wheatear of the hills is a much larger

bird than any of the plains, *picata*, with a decidedly stronger bill, and I propose to name it *S. alboniger*. *Pterocles senegallus* is a much commoner bird here than I have elsewhere seen it. A chup-rassee, by no means a good shot, brought in twenty. Three *Accipiter nisus* caught in the neighbourhood were brought me, and Mr. James tells me he has killed both *Ascalaphia bengalensis* and *Hypotriorchis esalon* in this immediate neighbourhood.

29th.—All day on the Munchur lake. First we went to see a thing quite new to me, *viz.*, fish driving. In mid water, where it is perhaps from seven to eight feet deep, a circular net enclosure, some thirty to fifty feet in diameter, is staked out, leaving one moderately broad entrance, into which the fish are guided by two walls of net some ten to fifty feet long, which widen out rapidly. A dozen or twenty boats then go out into the lake, and at a distance of from four to eight hundred yards from the enclosure, and opposite its funnel shaped opening, form a pretty close semi-circle. Then at a given signal commences the most diabolical din ever heard; men, women, and children sitting on the flat bottoms of the boats, beat on these ceaselessly with iron and brass pots, and as they do so, the boats push slowly on, towards the enclosure, closing up as they approach it. Never for one moment is the din intermitted, every individual, big and little, works at its creation as if their lives depended on it, and strange to say, owing to the vibration imparted to the water, hundreds, thousands, and often tens of thousands of fish are driven before the boats into the enclosure, one or two boats pushing right in, and a net being dropped behind them so as to close the circle entirely. Then commences the fun. All round outside the net, the boats cluster thickly, two men with long thin reed spears in hand on the prow of each punt, these being run right up to the net. Two or three men from the boat inside jump over board and dive after the fish, the great feat being to bring up two large fish, one in each hand (fore-finger and thumb firmly planted in eyes or gills,) at each plunge. The men inside stirring up the seething mass (the whole water seems alive with fish) many jump and fall into the fold of net arranged just above the water, many more show themselves near the surface (the water has become far too muddy for deep spearing) towards the margins of the enclosures, and are speared with incredible rapidity and precision. In a good drive for some minutes, upwards of 100 fishes of from 5 to 30 lbs. in weight each are caught and speared, or jump out per minute. A ton of fish is *often* taken in a haul, we saw fully that quantity captured in one drive, though in several others, not nearly so much came to hand. Finally, the enclosure is roughly netted, and it may be safely predicted that of

fish weighing 3 lbs. and upwards, not one in fifty that gets into the enclosure ever escapes. The biggest fish are huge siluroids, six or seven feet in length, long thin scaleless shark-like looking wretches, and deep massive carps, roohoo, and its congeners, with broad glittering, gold and silver scales, and of each of these numbers fully 20 lbs. in weight, were taken before our eyes. The boatmen indeed declared that they often captured them a maund in weight (82 lbs.,) but I have observed that all fishermen lie as to the weight of the fish they have caught.

Then I went to see another modification of this same mode of driving; a rush bed, the favourite haunt at mid-day of many of the larger carp, is surrounded, a boat guards every little fish-path, if I may so call the runs, by which they enter and exit from the bed. At the bows of each boat stand one or more spear-men, or women, (for the ladies are nearly as great adepts at this sport as their lords and masters.) Then a boat pushes in to the bed and commences the pots-and-pans concert, working backwards and forwards like a pointer in a turnip field. Sooner or later, every fish *must* make a bolt of it—human nature *may* endure this fiendish discord, but fish nature *cannot*. The water is undisturbed, clear, and bright, and rapidly as the broad-backed carp makes his exit, he is fortunate if a spear does not cut short his career. I watched a woman strike five fish, in succession, at depths of from 2 to 4 feet, as they darted by, in certainly less than a minute, of course letting go each spear as she felt it strike, and clutching another from the bundle she held in her left hand. The men with me said she was one of the best shots on the lake. At the same time I saw (and it was only natural) scores of fish missed, and some by this very lady.

Another way they have of spearing is to let the boat glide noiselessly in the shallower lotus-paved portions of the lake. Under the broad leaves their practised eyes detect the fish basking, and then they not only spear them at times before the fish wakes to the consciousness of the boat's approach, but continually, when a more wide-awake fellow darts off before they are within striking range, fling the spear after him, and thus strike him swimming at the distance of some yards.

The spears from 8 to 11 feet long, are very straight and light, single reeds, with fine slender, slightly-barbed iron heads.

Pushing through the reeds they spear the coots and water-hens with wonderful rapidity, and wounded water-fowl, diving and passing anywhere near the boat, plainly visible as they are in the clear water, are certain to be transfixed.

It is not only with spears that the boatmen of the Munchur Lake are adroit marksmen, they shoot coots, even flying, at from

20 to 30 yards distant, with blunt arrows, with a rapidity that must be seen to be credited.

I did not notice any new birds, but shot several of the large black-headed gull, this being almost the only lake in Sindh where I have yet seen it. Watson and James say the same.

It is curious how particular ducks affect particular dunds. In one dund, the great mass are *Aythya nyroca*; this will be one much covered with the more or less dry leaves of the lotus. In another, *Q. angustirostris* predominates; here there will be a vast quantity of green rush, making the whole lake look like a meadow; in open clear water dunds of moderate size, *Aythya ferina* will be in a majority, while, where there is a vast expanse of open water, *Branta rufina* and *Fuligula cristata* will outnumber all the other kinds many fold. Shovellers and shelldrakes (and precious wary these latter always are) sneak along the edges, while mallard like to sit round the roots of the tamarisk bushes, thousands of which stand far out into some pieces of water. What the pintail seems to prefer are pieces of comparatively open water, dotted about with small patches of a long leaved water plant a *Sagittaria*, I think, which rises about 4 inches above the surface, in amongst which they sit, completely hidden when asleep, even at a few yards distance, and with their brown and inconspicuous heads, and a little only of their white necks showing when they are looking about them. The Munchur is an epitome of every description of broad, and accordingly in different parts of its huge expanse, different species predominate, only the coot everywhere swarms in myriads, and make, in rising on the sudden discharge of a gun, a noise like the roaring of mighty waters.

In particular parts the purple coots are very abundant. I watched a flock of these for a long time and found that they did not keep in the water, but spent most of their time sitting on and clambering about the reeds (which they grasp firmly with their huge feet,) about half way up, turning here and there, imitating, if it might be hinted to them, the movements of their companion *A. brunescens*, about as neatly as a donkey would those of an Italian greyhound.

I find from James, that *Coturnix coromandelica* is not uncommon in Sindh. *Eupodotis Edwardsi* has been once killed near Kurrachee, and is found not uncommonly in Thurr and Pakur. *Sypheotides auritus* is found near Kurrachee at certain seasons. Both Watson and Day speak to seeing *Charadrius longipes* in North Sindh. *Rhynchaea bengalensis* also occurs pretty commonly. James says, that *Ciconia alba* is not uncommon: he has several times seen large flocks in and about rice fields. Watson says,

Leptoptilus argala is common enough, where there is water, in amongst the sand-hills of Rooree. *Geronticus papillosus* not uncommon. The widgeon is very common in the Munchur, but neither Day, nor myself, nor Watson have ever seen it in any of the innumerable dunds of the Shikarpoor Collectorate. Both the grey lag and Indian goose are pretty plentiful about the lake, mostly seen feeding in the wheat fields which everywhere run down close to the water.

30th.—Came across the lake to Boobuck, seeing nothing new except an enormous flock of *Limosa egocephala*, out of which nearly two dozen fell to a single shot. On the Boobuck side, hemp (for bhung) wheat, fennel, carrots, &c., were growing in the inundation ground, in luxuriance. The one village of Boobuck, (containing about six or seven hundred inhabitants) pays a lakh of Rupees land revenue. Near Boobuck, we shot an *Aquila fulvescens* off its nest, containing two eggs. Ospreys and the white tailed sea eagle are common. I saw *L. goensis*, *Chettusia gregaria*, *C. flavipes*, Savigny (*leucura*, Licht.) and *Vanellus cristatus*. Numbers of *A. oscitans* and *Fulcinellus igneus*. On an old wall at Boobuck, we saw a *P. cyanus*; curiously enough, *P. pallida* was common all about the shores of the lake. Starlings in vast numbers, several *Cichlodes atrogularis*; *H. chirurgus*, very common; stilts, all the terns, and gulls.

Riding in 10 miles to Sehwan, we saw *Sylvia delicatula* in the tamarisk bushes, and at Sehwan itself, we again came across *Palæornis torquatus*, which we have not seen for long. The bungalow at Sehwan is built on the high earthen platform of an old fort said to date from the time of Alexander, and certainly numerous Grecian and Bactrian coins are found about it from time to time. About this place, for the first time in Sindh, I saw a large flock of *C. affinis*, Gr., our common Indian swift

31st.—Came from Sehwan to the Indus, about five miles. En route saw a fine osprey, numbers of *H. rustica*, and several *S. delicatula*; and at 11½ A.M., started by boat for Kotree. In the Indus saw two *S. caspius* sitting in a huge flock of *S. aurantia*. A few common herons and bar-fronted geese were the only other birds except three pelicans, (*P. crispus*) that we saw during the rest of the day, in which we made 24 miles.

1st.—February. Started off early. For many miles the river was absolutely blank, then we came upon a flock of black stork and spoon-bill, and saw a couple of pelicans too far off to be quite certain of the species, but by the intense orange of the pouch, I believe them to have been *crispus*.

2nd.—Arrived at Kotree about 2-30 P.M. Saw nothing en route but two brahminies, a few herons, and a few *Pelicanus cris-*

pns. The river from Sehwan seemed to be deserted.

3rd.—Went across the river to Hyderabad. Saw nothing noticeable. The Meers' tombs are not worth looking at, though the encaustic tiles are pretty good. The fort is trumpery. The whole city seems to be built of mud. I did not notice a single bird worth shooting or recording. In the evening came by rail to Kurrachee.

4th.—The only thing that particularly strikes one here is that every man who wants to raise water, works his own treadmill. A small Persian-wheel drum with steps, up which the man walks, turning the wheel, and with it the chain of buckets. I couldn't help recalling the penitent convict's lay, and his remark—

“And when the good folks turn me out,
Because I'm better grown
Blow me, if I don't mean to have
A treadmill of my own!”

To all such humble and contrite sinners, Kurrachee may be especially recommended.

Kurrachee itself is bare and dismal. Drove in the afternoon to the Pier. There saw numbers of gulls, terns, &c., and on the flats of mud, *Demiegretta gularis* and other birds, *Squatarola helvetica*, and I think some others.

5th.—Went down early to where the fish are first brought in by the fishermen and sold. Numbers of gulls about, apparently, chiefly of one species. I shot seven, and think that all young and old are the same, I should guess *borealis*, Brandt, of Bon. Conspetus, the only book I have at hand. We saw *S. picata*, which is pretty common here. In the afternoon, about the harbour, shot *Cirripidesmus Geoffroyi* and *Æ. cantianus*, *Tringa cinclus*, *Strepsilas interpres*, and *Demiegretta gularis*.

6th.—Went down again to the fish auction. Saw as before, hundreds of the large gull which I take to be *borealis* and shot 14. This was almost the only gull I saw there, except two *argentatus*, distinguishable at once by their paler hue. After breakfast went across the harbour to Munora, and during the day shot about the harbour. Of a small slender long-gonys billed, very rosy breasted gull, without any blackish patch near the ears, which I take to be *Gelastes Lambruschini*, Bon., I observed innumerable birds and shot some 16. I also got amongst them several *ridibundus* in the winter garb. Just at the end of the mole and at the mouth of the harbour, *Thalasseus cantianus* and *bengalensis* were very abundant, and I shot three of the former and five of the latter at one shot, out of a party huddled together on a heap of stones which terminates the

mole. The large gull was less common outside. The Caspian tern was common. Then I shot *Larus Hemprichii*, I am sure of the bird, as I perfectly remember the figure Finsch gave in his Abyssinian paper in the Zoo. They seem tolerably plentiful at the mouth of the harbour, not so common inside. About the rocks of Munora head, is a swift, which I believe to be Tristram's *barbatus*, the size and shape of *apus*, but a wood-brown almost the colour of *melba*, and the feathers all excessively narrowly margined whitish. I obtained only two. But there were plenty, and they breed, it is said, both in the buildings and on the rocks, but I could see no trace of any nest. On the mud banks I obtained four *Demiegretta gularis*, *asha*, apud Sykes, several Turnstones, and half a boat load of shore plovers, *Cirrepidesmus Geoffroyi* and *mongolicus*.

7th.—In the harbour all day; birds very wild. Got some scores more of shore plovers, *Thalasseus cantiacus*, and *bengalensis*, and Caspian terns. I saw several turnstones, and numbers of oyster-catchers, but failed to obtain any. *D. gularis* I obtained. I also shot both red shanks and several dunlin, and got for the first time in my life *Tringa platyrhyncha* and several *Limosa rufa* in winter plumage, besides a large *Tringa* which I took to be the knot, but which seems too large for this and has puzzled me greatly. I succeeded in getting specimens, but cannot identify them.* All the terns and *Thalasseus* dart down head-foremost, king-fisher-like into the water, and have straight pointed bills suited for this work, and by preference sit on the land, while the gulls pick up things with a kite-like swoop, have hooked bills, and I think sit on water more than on land.

8th.—In the harbour all day. Got several more *Tringa platyrhyncha*, *Demiegretta gularis*, *Limosa rufa*, the large tringa that I cannot identify, the dunlin, the Kentish tern. I also killed an oyster-catcher, *Squatarola helvetica*, *Terekia cinerea*, a bird I never killed before, though Simson sent it to me from Dacca, and *Calidris arenaria*. This latter has only three toes, and it associates a great deal with the small plovers, but it certainly feeds and runs more like the tringas than the plovers. The Kentish and Bengal crested Terns, affect the mouth of the harbour chiefly. The oyster-catchers, at high tide when all the flats are covered, associate in huge flocks, but at low water, are scattered about feeding on the mud, in twos and threes; they are very wary, and keep up perpetually a shrill warning cry. I saw a pelican (not near enough to make sure of the species) and several flamingoes. There is a gigantic flock of the common cormo-

* These were *Tringa Crassirostris*, Schlegel.

rant, sometimes (in fact, in fair weather, generally,) out at sea in the day, and usually about the harbour from 6 P. M. to 8 A. M. I have seen no more *Larus Hemprichii*, though I have hunted for them far and wide.

9th.—Again in the harbour. Found *Terekia cinerea* very common. Got several *Tringa platyrhyncha* and *Oyster-catchers* and more of *Limosa rufa*, and the large *Tringa* which I don't know; *T. cantiacus*, and *bengalensis* in hundreds. Only got one *Calidris arenaria*. I shot one specimen of *Thalasseus cristatus*, the only one I have yet seen here. Grey curlews numerous, reef white and common Herons, ditto. *Gelochelidon niloticus* not uncommon, *S. Caspius* common. In the evening went on board the *Amberwitch* to go 60 miles up the coast to Soomeeanee Bay.

10th.—At the Bay, saw millions of flamingoes and cormorants; several *Calidris arenaria*, and two *Terekia cinerea* were shot, also a single *Larus Hemprichii*, (we saw several others but failed to obtain them) and one huge specimen of *borealis*: *S. caspius*, *T. cantiacus*, and *bengalensis*, *Pelicanus crispus*, several *L. ichthyætus*, but none obtained, and we saw myriads of the gulls which I take to be *Lambruschini* and *borealis*. The novelty was a medium sized grebe, *P. nigricollis*, of Europe, I think, of which we killed five, and of which many are to be met with close to Kurrachee at the Ghiseree creek, and again at the mouths of the Indus.

11th.—Sunday. 12th.—About the harbour all day. Found a few *Tringa subarquata*, amongst the dunlins. Killed several turnstones, sanderlings, and *Terekia cinerea*, bar-tailed godwits, grey plover, and one *L. Hemprichii*. These latter never appear to come here in more than parties of three and four, though further up the Gulf, they seem to be more numerous. Ospreys are common about the coast, and I note here that in Soomeeanee Bay, I saw an enormous eagle, the largest I ever saw, bigger apparently than any golden eagle.

13th.—Outside the harbour nearly all day—dealt with bad luck—saw all kinds of things, and got nothing. First there was a party of snippets, swimming in the open sea, which though I have never seen the birds alive, I conclude must be Phalaropes. What the deuce else *can* they be? regular stints, but swimming away, miles out at sea, and a stiffish sea on too, as jolly as if they were Scotters. I wasted two hours over the little wretches. I was in Capt. Giles's gig, the best boat and crew in the harbour, but there was just as much sea on as we were up to; it was bad pulling, and as soon as we got within 100 yards, up sprung the flock, scudded away over the surface of the

water and down again in a couple of hundred yards, and we of course after them, but with no better results. At last I took to blazing at them as they rose, with S. G. green cartridge, from the duck gun, but I had no luck, though the pellets rattled in amongst them every time. Whilst we were after these, I saw a party of *Podiceps nigricollis*, but there is no chasing grebes out at sea unless the day is still, so we let them be. Then when we were quite tired of the phalaropes, we caught sight of two unmistakeable shearwaters, so we up helm, and gave chase. These however served us the same trick as the Phalaropes, floated buoyantly on the water till we got about 100 yards off, and then rose to drop again, a few hundred yards further on—and so on, and so on, till my crew all but mutinied, and I had to turn homewards, and then came the crowning misery of the day, for just as we got on the bar, a gull, that I couldn't in the least make out, but a skua of some sort I take it, flew right over us, not above 20 yards high, and whether it was the absurd way in which the boat was pitching and tossing, compelling one to keep kneeling, or what I cannot say, but I let off three barrels at him, without loosening a feather. Came home, my friends said, in a vile humour.

14th.—Went on board the *Amberwitch* for a cruise to Gwader. Started about 10 A. M. Again saw the phalaropes, and of course lots of gulls and terns, but nothing new.

15th.—Made Korebutt, about 105 miles up the Mekran Coast. High sandy perpendicular cliffs, from 600 to 800 feet high, overhang the beach. Birds are very scarce—a few large gulls, *borealis* and *argentatus*, one *L. ichthyætus*, a pair of oyster-catchers, and a pair of Kentish plovers were all the sea birds I got and almost all I saw. There were several common herons; Seesee, *A. lusitania*, and *R. rufiventris* common in the ravines. There too we again came across *S. monacha* and the wheatear of the *picata* type, but larger and purer coloured, which I have called *alboniger*. At sea we saw a couple of those wretched shearwaters, and two or three parties of the swimming stints which can only be phalaropes.

16th.—Made Pusnee, about 10 A. M. Saw some of the great black-headed gull and killed both *Podiceps cristatus* and *nigricollis* and a skua, *parasiticus*, I think; also several of Hemprich's gull. On shore, I only saw *Saxicola deserti*, the same birds as at Korebutt, dunlins, and *T. platyrhyncha*.

17th.—Made Gwader about 8 A. M. The skua I shot yesterday is, I think, a 2-year old, not a fully adult bird, and it is therefore difficult to be certain what it is.

I saw several others, but I failed to secure any, although I did

my utmost. Here I saw a few grebes, and several *P. crispus*, and had one skin of the former, and two of the latter given me. Saw also several skins of *Cichloides atrogularis* and one of the sanderling. We killed a couple of Hemprich's gulls, four of *T. cristatus*, and saw numbers of the small rosy-breasted gulls, without the dark ear-spot. This is numerically the most common sea bird all along the coast here. Cormorants in numbers, *Larus borealis* common, *T. cantiacus*, and a few great black-headed gulls.

18th.—In the bay killed eight of Hemprich's gull, and three in different stages of the great black-headed gull. These are very large, running to $28\frac{1}{2}$ in length to 68 in expanse, and to nearly four lbs. in weight. On shore we got *Cichloides atrogularis*, *S. picata*, *Ægialitis curonicus*, Besck (? *philippinus* Lath.) and *Galerita cristata*. We saw and chased a *Podiceps cristatus*. One of our party also got another *L. ichthyaetus* in full breeding plumage, and numerous other gulls of species already noticed.

19th.—Killed eight grebes, five *cristatus* (two in winter plumage, two changing to the breeding plumage, and the last with the head bright rufous); and three *nigricollis*. We also secured four pelicans (*crispus*) magnificent birds, in breeding plumage, a reef, and a common heron, and some more black-headed gulls.

Any one who likes may laugh, but to me a grebe chase at sea is first-rate sport. At Gwader there are two fine bays, one in front and one behind the town, which is built on a broad spit of sand connecting the main land, with an huge rocky headland, that at the distance of a few miles, appears from the sea to be an island. In both bays numbers of grebes, both the common crested and the black-necked, are seen dotted about. You get a light native canoe, just holding two rowers besides yourself, a rather crank concern, but which if you are only steady, rises over the swells like a duck. Picking out your particular grebe, you give chase, kneeling low in the front of the boat. To-day there was no wind, and the surface was unrippled, but there was a long delicious swell, rocking one slowly and tenderly, altogether charming, but slightly interfering with the sport for which a dead calm is best. When you get within 100 yards of your bird, he begins, if you go straight at him, to swim away almost as fast as you can pull, and if you gain on him, he dives; but if you direct your course so as to pass by him at about 60 yards, he will often, if he has not previously been fired at, allow you a snap-shot at that distance; I say a snap-shot because he is watching you all the time, and you must fire the instant you raise your gun, or you have no chance. The second grebe I killed to-day, I rolled over dead, the first shot, when passing by

him at about 55 yards; the first though similarly approached, dived at about 80 yards; we pulled as hard as possible after him, and he showed again about 70 yards off; my gun, a very heavy, long barrelled double, 10 bore, with No. 2 green cartridge, was at my shoulder, full cock; for a wonder the bird appeared exactly where I expected, the very second the crown of his head showed on the surface, I pulled the trigger, and yet I was too late; the shot only struck the troubled water where he had disappeared.

Then we pulled an incredible time, full five minutes I am sure, before he again appeared, and then he turned up some 100 yards off, on the port bow. I instantly fired, not with any prospect of touching him, but to make him dive and so fatigue him. We were within 70 yards of him when he next rose, and he was not suffered to keep his head one second above water; next time I still looking out in front, he popped his head up close *behind* the boat, and before I could turn to fire (one has to be judgmatical in kittle crafts like these) he was off. We "reversed the engines," and went back on our track as hard as we could go, but when he rose, he was a good hundred yards a head; he got the contents of a barrel sent after him promptly, and the men making a tremendous spurt on which he had not calculated, he rose next time at about 50 yards, and quick as he was, could not quite escape the shot. Next time he was a little further, but he did not dive so quickly, and I distinctly saw the shot catch him; we pulled up sharply, but he had turned under water, and when he next showed up, he was more than 100 yards astern. I fired as usual, *but* he didn't dive. This was a good sign and showed he was at least a little out of breath; when we were about 70 yards off, he again dived, and came up about 30 yards off us broad on the quarter, but showed himself only for one second, being out of sight again before the shot could reach him; hard as the men pulled (we had had to turn the boat) he was sixty yards at least a head of us when he rose, but this time he was unable to get under again quick enough, and one shot caught him in the neck, and there he floated dead at last. I was greatly delighted, but yet it gave one a kind of pang to see his lovely white satin breast upturned, rising and sinking slowly in the bright sunlight on the soft green swells; I almost wished I had not been quite so successful or rather what I exactly wished was, that I could have got my specimen, and he remained alive and jolly all the same. Two of the birds procured to-day, fell to the first shot, most of the rest entailed long chases; one took fourteen shots to bring him to bag, two we lost after much labour, when certainly partly tired out, owing to their

getting in amongst others and our then following the wrong birds, which of course were quite fresh. One bird, certainly wounded, disappeared; it dived and never again rose to the surface before or behind, or one side or the other, and I can only conceive that some shark of which there are great numbers here (indeed sharks fins exported to China are the most important staple of the Gwader trade) must have picked it up.

No kind of sport probably requires such undivided attention, such quickness of eye, and such rapidity of firing, and though I bagged only eight birds in several hours of hard fagging, I must have fired at least eighty shots, and as any one of at least half of these might have been successful, the excitement was maintained throughout, the more so that the moment one bird was secured, another was at hand, turn on whichever side you would, and when to this is added, the bright sun, the clear water, the delicious sea-air, the constant rapid pursuit, and all the surroundings of "sea and cliff and silver strands," I submit that I have said enough to justify my *penchant* for grebe hunts.

20th.—Started for Muscat. Before leaving, had another turn at the grebes, getting three in two hours, besides two magnificent great black-headed gulls, in full breeding plumage. At Gwader itself, I mean on land, I saw no common crows or mynahs, only neophrons, white tailed sea-eagles, an enormous dark eagle, probably *chrysaëtus*, a few ravens, similar to our Punjaub ones, and in the pretence for a garden which surrounds the Resident's bungalow, a blue throat, (exactly similar to our Indian ones and which I should identify with *succica*, Linn., tho' Gray separates them as *cærulecula*, Pal.) and a black-breasted thrush.

21st.—En route to Muscat; in the open sea, saw numbers of flocks, some of four or five, some of several hundreds of *P. fulicarius*. They swim as well as ducks: are shy, fly well and rapidly, but they cannot dive; a winged bird that made frantic efforts to escape capture never attempted to dive. I notice that Jerdon's description of the soft parts does not at all agree with my bird. We also saw several shearwaters. The one I killed is about the size of *Puffinus anglorum*, but the wings are considerably shorter than the tail, there are no crescentic marks on the side of the neck, and the feet are interiorly a delicate lavender, pinky white; margin of webs, exterior of outer toe, and ridge of mid toe and claws, black, in which respect it is nearest to *yellowan*, while except as to size and colour of feet, it is nearest to *P. obscurus*. Comparison is required.*

22nd, 24th.—At Muscat. Nothing to be seen but the dark

* Described as *Puffinus persicus*, "Stray Feathers," No. 1, p. 5.

gull, *L. Hemprichii*, the great black-headed gull, which is rare, *L. borealis*, *L. ridibundus*, and the rosy-breasted gull, the two latter both very numerous, the cormorant *G. carbo*, pretty common, and nearly in full breeding plumage. No terns. One would fancy that these were all away, breeding somewhere; but it seems certain from what I hear that these breed at Astola, &c., in May. On the shore a very few *T. hypoleucos*, neophrons (failed to get a specimen) an *Alcedo bengalensis*, *Turtur cambayensis*, ospreys, common sparrow—no crows, no kites, no mynahs—only a very few ravens, the latter with a long and much rounded tail. I note here that *Otocompsa leucotis* is procured in the neighbourhood of Gwader, and higher up in the Persian Gulf. Here I saw a pair of Bean geese, domesticated ones, from Zanzibar. They appear absolutely identical with the wild ones. These, the tame ones, breed here, the young preserving the characteristics of the species. There is also a young *P. onocrotatus* brought from somewhere up the gulf.

Muscat is, if not too closely examined, a singularly picturesque looking place. It stands at the head of a sort of fiord, as it would be called in Norway, a very narrow deep bay, walled in on either side by lofty perpendicular cliffs of weather-beaten rock, everywhere crowned by small forts and Norman-looking turrets, of comparatively fresh and bright looking stone, built, I believe, by the Portuguese. The eastern wall (if I may use the word) of the harbour, is a vast natural mole, a very narrow promontory of lofty rocks, descending on either side sheer into the sea, up to the highest level of which, they bristle with corals, shells, limpets, echini, sea anemonies, and zoophytes of marvellous shapes and colours. Through the middle of the mole, the waves, or more probably earthquakes, have burst a narrow chasm out into the next adjoining bay, some few fathoms in width, through which boats can pass, thus converting the terminal half of the promontory into an island. The town itself is closely encircled on the landward side by bare, desolate hills, like those around the cantonments of Aden, of no great height in the immediate neighbourhood, but rising further inland, it is said to at least ten thousand feet. Except by water there is, I believe, only one *practicable* road, out of Muscat; but numerous rugged pathways lead by devious routes out of the basin, and admit, though with more or less difficulty, the passage of foot travellers and some of them of beasts of burthen. On either side of Muscat lie other similar, but less narrow, rock-bound bays, at the head of each of which nestles some more or less important village, and thus it has resulted from the extreme difficulty of land travelling, that almost the entire intercourse between these villages and Muscat, and

inter se, is carried on by native omnibus boats which during the day in fine weather may be seen incessantly entering and leaving the harbour, and which carry passengers and their goods backwards and forwards at an excessively low rate.

Of course there is scarcely any vegetation about Muscat, a few gardens and date trees, in the outskirts of the town, being all there is to show under that head; but further inland, we were told that, at the distance of only a few miles, both cultivation and trees were to be found. Certainly along the coast for five or six miles, on either side, and just inside the coast so far as I could see, in crossing some of the hills which divide the Muscat basin, from those of other neighbouring sea-side places, it would be impossible to conceive a more utterly sterile place. This it is, I suppose, that explains the scarcity of birds, for inland, we were assured, that there were many. So far as my explorations went, besides those already noticed, *A. lusitania* was the only bird seen.

Muscat has three great branches of trade, that in rock salt, from *Ormuz* and *Kism*, islands, at the mouth of the Persian Gulf, dates and fish. As from Gwader, so here, the export of dried fish and of sharks' fins to China is considerable. Of the fishing a great deal might be said, but I will not trench on Dr. Day's province, suffice it that nowhere have I seen such astounding shoals of sardines, and horse mackarels, such multitudes of bonitas, or such marvellously-coloured fish, green, pink, crimson, bright yellow with the brightest smalt blue ribbands, fish in fact of all colours, sizes, and shapes, and last, though not least, some at any rate that are matchless eating.

25th.—At sea. Last night we left Muscat. I have omitted, I see, to note that the sea scenery along the coast near Muscat is in places, very fine; grand stacks of rock, perhaps a hundred feet in height, stand out here and there amongst the waves, feathered, when a breeze rises, with foam to their top-most peak, the ospreys special perch; or long ragged lines of lofty and perpendicular cliffs, here and there burrowed by the waters, rise frowning out of the deep, green, silver-laced water. On a bright day like yesterday, with a light breeze curling the crests of the waves which it spurs on to dash half playfully, half pettishly against the grim *chevaux-de-frise* of rocks with which the whole coast line here bristles, nothing could well be more enjoyable than a long row, such as took, following at the distance of a few hundred yards, the sinuosities of the shore, except perhaps—the excellent alfresco lunch we made after it, in a tiny nook, where Neptune had already considerably spread for us a snowy cloth of the finest pounded coral.

For some hours we have been seeing phaleropes, and have

stopped half a dozen times, and given chase in a row boat which we purposely kept towing along side, but all in vain, the little wretches are so wild, we can make nothing of them. Of shearwaters we saw at least a dozen, and also two tropic birds, but couldn't get anyhow within shot. A few gulls, *argentatus* and *borealis*, occasionally hovered about us or followed our course.

26th.—Arrived at Gwader where we saw nothing new. Grebes dotted all over the bay, little parties of the Dalmatian pelican, (now nearly all in full breeding plumage, their pouches the colour of African marygolds) sailing about majestically, and many hundred gulls, floating here and there, some singly some in large parties, amongst which Hemprich's sombre bird, and the great black-headed one, most readily caught the eye. We left about 8 P. M., and during the rest of the day we have seen no single bird calling for notice except, in the far distance, what I was assured were, and may very likely have been, boobies.

27th.—Running down the coast towards Kurrachee. Off the Omara headland, and about six miles off shore, we saw numbers of tropic birds. A gun being fired at a shearwater that crossed our bows, some eighty yards ahead, the "*Bo'suns'*" (boatswains, the naval equivalent for *Phaeton*) which hitherto had never come within two hundred yards, or taken the smallest notice of us, gathered round the vessel, and though keeping about sixty yards distant, kept flying round and round and over us, in the most inquisitive manner. One was soon dropped, and a boat lowered to pick it up; they took no notice of the fall of their comrade, but sheered off somewhat when they saw him lifted out of the water; another gun being fired, they again came closer than before and two more were shot, and then they drew off, going on with their fishing from two hundred yards to a quarter of a mile off us. A couple of blank shots being fired, two or three again came up to us, obviously merely to see what the row meant, and of these we got another. After this they disappeared, we were steaming, and I believe simply left them too far behind to hear our salutes in their honour. About three miles further, we passed another smaller party, some two or three hundred yards off, and on our firing, they at once hurried up to the ship and allowed us to get two more. In all I have secured six, all of them, as I believe, immature *ætherius*. Their flight is very like that of terns, though stronger and more steady; they work backwards and forwards fishing with their long sharp bills pointed straight downwards, just like so many Caspian terns, and they drop down into the water just like these, or like *C. rudis*, the glossy black and satin white plumage of which is much like theirs. None of them had tails more than 9.5 inches in length, whereas in adults that I

have seen the tails were, if I remember rightly, treble this length. Moreover, the hallux and its web and the basal joints (with their webs) of the toes instead of being red, are white, faintly tinged with fleshy blue, and creamy yellow in different places.

28th.—Kurrachee. Just as we entered the harbour, we again saw my old enemies the phalaropes, and a skua, an adult, with long pointed tail, and as far as I could judge certainly *parasiticus*.

There must be an end to every thing,* and my pleasant holiday was drawing to its close. I had only a couple of days more in Kurrachee; there were specimens innumerable to be packed, kind friends to whom we had owed so much, to say farewell to, and we steamed out of the harbour again en route to Bombay, without firing another shot or securing a single other bird.

Even on the way to Bombay, however, those *bêtes noires* of my expedition (of each of which I only secured a single specimen,) the phalaropes, the skuas, and shearwaters, commissioned, I feel sure, individual members of their communities to see me safely out of their domains. Anyhow, we saw a little party of the first, and one or two of each of the latter on our way to Bombay.

I now proceed to enumerate all the species, which I have as yet ascertained, to occur in Sindh. Of all species not included in "Dr. Jerdon's birds of India," I give full measurements and descriptions. My list includes somewhat less than three hundred species, but I hope within a year to see this largely supplemented by the researches of local observers.

3 bis. *Gyps fulvescens*.—Hume. Scr. Blk. p. 19 ? *G. Fulvus*, Gm.

This was the only species of vulture that I actually shot and identified; but other species doubtless occur. Vultures however are very rare in Sindh compared to what they are in Upper India.

Ornithologists at home, now generally admit the validity of *G. himalayensis*, nobis, the Roc, as I have called it. Mr. Gurney did so long ago; and by last mail I had a letter from Mr. Bowdler Sharpe, Mr. Gray's successor at the British Museum, expressing his surprise that so excellent a species should so long have escaped notice, more especially since the British Museum contains a fine series of it, but neither Mr. Gurney nor Mr. Sharpe as yet believe in *fulvescens*.

The following are Mr. Gurney's remarks (*in Epist.*) on this species:

* Exclamation of unhappy but patient reader, "thank heaven!"

Gyps fulvescens.—"Your description of this and the specimen which you sent for my inspection by Captain Marshall agree with the Western *Gyps fulvus*, in the state that it appears during the first few (probably three or four) years of its life, but many observations on specimens kept in confinement appear to prove that the Western *Gyps fulvus* always becomes increasingly pale with age, the longitudinal striæ coincidently, but gradually, disappearing from the feathers of the under surface, and the lanceolate feathers of the ruff also gradually disappearing and leaving the ruff composed of unmixed white down, so that when old, the Western *Gyps fulvus* would seem to bear as much general resemblance in coloration to your *Gyps himalayensis* as it does when young to your *Gyps fulvescens*. The Western *Gyps fulvus* appears, however, to agree with your *Gyps fulvescens* in having the third primary the longest, such, at least, is the case with the only four specimens in the Norwich Museum, which have the primaries perfect. Of one of these the locality is unknown; the other three are from Athens, Tangiers, and Abyssinia respectively. On the whole, my impression is, that your *Gyps himalayensis* is a good and distinct species, and that your *Gyps fulvescens* is equal to *Gyps fulvus*, but I much wish that specimens of your *Gyps fulvescens* could be kept for some years in captivity to see if they become pale with age, as is the case with *Gyps fulvus*. It seems certain that in *Gyps fulvus* the average size of male birds is considerably greater than that of females. At least I have always found it so, when I have had occasionally the opportunity of ascertaining the sex of specimens."

I confess that I am not yet convinced of the identity of our bird and *fulvus* of Europe. A marked distinction seems to me to consist in the fact, that the young of *fulvescens*, obtained when only just able to fly, is paler and less rufous a great deal than the adult. And that the oldest birds appear to be the most rufous, whereas the exact converse is the case in *fulvus*.

Again, at and in the neighbourhood of Ajmere, where I was detained nearly six weeks towards the close of the Rajpootana famine, I daily saw thousands of vultures. A dozen times a day I stood within from 50 to 100 yards, minutely and carefully scrutinizing large groups of them through powerful binoculars as they scrambled about gorging themselves, squabbling and "chortling" over the carcase of some poor bullock or camel, and *never once did I see* one of the pale birds, or in fact one of what we must hold to be the adults of this species were our rufous birds really the young stage of the true *fulvus*. Not one old bird out of many thousands! This, though not at all impossible, is certainly a matter of difficulty; and it seems to me that either

our birds are distinct, or that the "*fulvus*" of Europe has usually been described from specimens long kept in confinement, which have in consequence assumed altogether abnormal and unnaturally pale tints.

Is it not however just possible, that both *fulvus* and *fulvescens* occur in Europe, and that they have been confounded?

If ornithologists here would only pay a little attention to vultures, we might amongst us soon settle the question? Can any one succeed in shooting, a *fulvescens*, in the typical *fulvus* plumage? I myself have tried for years, even to get a sight of one, but hitherto without success. I am naturally inclined to believe that Mr. Gurney *must* be right, but I want the matter finally set at rest.

What by the way is the vulture that Schlegel separates as *vultur fulvus orientalis*? Surely this is our *fulvescens* or the western European link connecting this latter with the true *fulvus*.

When on the subject of vultures it is well to note, that I have some reasons for believing that the sub-Himalayan thin billed vulture, which seems always to breed on trees, (Hodgson's *tenuiceps* as his drawings clearly prove), at all times apparently a darker bird, is distinct from our plains species which always breeds on cliffs, the adults of which are very pale. If this be so, then it remains to make certain whether Scopoli's name of *indicus* really applies to our bird which is apparently doubtful. If not the bird described by me (Scr. Bk., p. 22), will need a name and may perhaps stand as *pallescens*, nobis, as for *indicus*, Tem., p. c. 26, although this plate is said to have been taken from a specimen of *fulvus*, I cannot avoid suspecting that it represents *fulvescens*.

6.—*Neophron ginginianus*, Daud.

I take shame to myself, that I neglected to procure a good series of *Neophrons* in Sindh, at Gwader, and at Muscat. In all these localities, it swarms wherever human habitations are found, and in the most uninhabited parts, even of the Kelat Hills, a pair may occasionally be met with.

Mr. Blyth, it will be remembered, separates the Indian race from *percnopterus*, L., under Daudin and Latham's name, on the ground that the Egyptian bird "is larger and more robust, the tarsi and toes, conspicuously so. The corneous portion of the bill is black and the ceral portion is of a reddish yellow, different from the purer yellow of the cheeks, the talons also are black, and the cuneate tail passes the tips of the closed wings by an inch or more.

"In the Indian birds the corneous portion of the bill is a pure yellowish flesh colour, as are also the talons; the ceral portion

of the bill is of the same yellow as the cheeks, the points of the closed wings just reach to the tail tip, and a conspicuous fold of skin is continued from beneath the ear to the throat underneath, which is little more than indicated in the North-African species. Moreover, the throat is quite bare in the Indian species, thinly clad with short white feathers in *percnopterus*."

In Sindh and at Muscat, I saw both black and yellow bills, and I could not observe any marked difference in size between them, but as I did not measure and preserve specimens, this goes for little. But I have of late years procured and measured, numerous specimens, in many different parts of India and every where, both of black and yellow-billed birds, and with and without more or less of slender white feathers on the throat; and I have been unable to detect any constant difference in size between individuals presenting these different characteristics. Mr. Brookes remarked in the Ibis of 1870, that there appeared to be a certain geographical distribution of the two races, that he found both in Delhi, but could not procure a black-billed one at Almorah or Etawah. From the latter locality I have a black billed bird, and my present impression is that the differences alluded to are not dependant on race, but on age or season.

It may be after all that Pharaoh's chicken is distinct from our dirt-bird, but whether this be the case or not, I think very few of the distinctions indicated by Mr. Blyth will hold good

I have made arrangements for having the weight and length (total and of wing) ascertained, and the various points referred to noted, in the case of twenty adult Egyptian birds. I wish each of my Indian readers would do the same for me in regard to two or three adult Indian birds shot in their respective neighbourhoods. The points to be noted, are 1, sex; 2, date of killing; 3, total length; 4, length of wing; 5, distance by which closed wings exceed tail; 6, colour of corneous portion of bill; 7, colour of cere and whether darker than, or unicolorous with, skin of face; 8, throat; whether bare or feathered, if the latter, to what extent; 9, fold of skin from beneath ear to chin; whether conspicuous or merely indicated?

7.—*Gypaetus barbatus*, L.

I observed this species on two occasions in the hills dividing Sindh from Khelat. Dr. Day observed it near Duryalo, and it is well known to most sportsmen who have shot ibex in those ranges.

8.—*Falco peregrinus*, L.

Notwithstanding the myriads of ducks which haunt the inland waters of Sindh, *peregrinus* (the duck hawk *par excellence*) seems very scarce. We only procured a single specimen, and

this was on the banks of the canal near Shikarpore, and saw at most three or four more all the time we were in Sindh. True to the sea-coast-loving habits of the species, I found a pair hanging about the Manora headland of the Kurrachee Harbour, and another pair off the entrance of the Bay of Muscat, but these were far too wary to allow of any successful shot. I obtained a very fine female, however, before entering Sindh, on the banks of the Chenab near its junction with the Indus.

Mr. Gray separates our Indian birds under Latham's name of *calidus*, but having now had the opportunity of comparing no less than seven European with more than twenty Indian specimens, I must record my humble concurrence in Mr. Gurney's view that they are identical.

10.—*Falco saker*, Schlegel.

Strange as it may appear I only saw one single specimen of this falcon in Sindh. Further north, in the Punjab, in the Ferozepore and Sirsa districts for instance, they are excessively abundant. My single specimen, a nearly adult male, with the wing 14 inches, was shot at Shahgodria, at the foot of the hills dividing Sindh from Kelat in the Mehur Sub-division of Upper Sindh. I was always on the look-out for this bird, and not infrequently shot *F. juggur*, by mistake, for it, but this was the only specimen seen either by myself or any of our party.

An idea, I observe, seems to exist that my beautiful new falcon from Yarkand, *F. Hendersoni*, is nothing but *F. milvipes*, Hodgson. Amongst Mr. Hodgson's drawings now in my custody, (the originals as I understand of most of the more elaborately finished copies in the British Museum) is a most beautiful figure of *milvipes*, which is clearly and unmistakeably our saker. Even were the native name not recorded as "Charghela" (and it is to be borne in mind that native falconers and fowlers like Hodgson's are familiar with every stage of the plumage of falcons commonly flown,) I have half a dozen specimens every one of which corresponds accurately with this very laboured and perfect full size drawing; most assuredly *F. milvipes*, Hodgs, is only one stage of our Indian saker and equally surely this latter is wholly distinct from *Hendersoni* nobis.

I wish to say more about *F. saker*, or at any rate our Indian species that now bears that designation. I do not think that its various changes of plumage have yet been fully noted.

After carefully studying a very large series of specimens which have been picked out from nearly double the number, a series in which no two birds are precisely alike, the general conclusions I come to are these :

First, as to the lower parts; the youngest birds have the chin and the centre of the throat, dingy white, and a cheek stripe pretty prominent, dividing the former from the ear coverts and cheeks, which are also dingy white, each feather pretty broadly dark shafted. The vent and under tail coverts are dingy fulvous white, only some few of the latter exhibiting a dark shaft towards the tips; the whole of the rest of the lower parts are a pretty dark hair brown, mottled on the breast and the centre of the abdomen with white or fulvous white, the mottling being due to many of the feathers having a more or less broad margin of this color, of which margins there are only traces on the feathers of the sides and flanks. As the bird grows older, the cheek stripes gradually grow less distinct and tend to disappear, as do the streaks on the ear coverts and cheeks; all markings disappear from the lower tail coverts; as to the rest of the lower parts, the white margins grow larger, the brown portions of the feathers contract, grow paler, and more rufous, till at last in a very old bird the whole chin, throat, cheeks, and breast become pure white, with only a few tiny pale brown spots forming a sort of irregular gorget and a few similarly colored hair lines towards the tips of the ear coverts. A faint trace of the cheek stripe generally remains. On the sides, flanks, and middle of abdomen, a good many moderately sized, somewhat rufous brown, ovate streaks or spots remain. The interior tibial plumes, the feathers of the vent and lower tail coverts are quite unspotted.

Now to take the upper parts, which I will divide into head, mantle, wings, and tail.

In the youngest bird the forehead is a dirty rufous white; the rest of the head is a moderately dark hair-brown, much the same colour as the general tint of both the upper and lower surface; some of the feathers darker shafted, and all the posterior ones narrowly margined with rufous or fulvous white. As the bird gets older, the pale margins increase in width, and as a rule soon lose their rufescent tinge. The brown central stripes then decrease in width until, in the oldest birds, the whole of the head and nape is pure white, with only narrow brown shaft stripes.

In the young bird the whole of the mantle is a moderately dark brown, about the same color as that of a young *jagger*; all the feathers narrowly margined with pale dull rufous, and there are sometimes one or two spots of this colour on the scapulars; the primaries are dark brown with no markings on the exterior webs, but numerous, very broad, ovate, slightly rufescent transverse bars on the inner web, not quite extending to the shaft. Later, the bird bleaches somewhat, the brown grows duller, and

the rufous margins wear away, leaving only a pale trace ; then the bird moults, and the new feathers are a dark brown with a bluish slatey bloom on them, and the rufous margins of the feathers are much broader, purer, and more conspicuous than in the youngest stage ; the primaries in many cases now show a few fulvous or rufous white spots on the outer webs towards their bases, and the white bars of the inner webs begin to become confluent towards the margin of the feathers. Then, as the birds get still older, the brown fades to a great extent out of the central portions of the feathers, the rufous margins grow broader and paler, and the whole mantle assumes a sort of "desert" tint. The central portions of the feathers still remain a sort of rufous grey, but this is concealed to a great extent in many places by the overlapping of the feathers ; on the inner webs of the primaries, the white bars become altogether confluent on the marginal half, and the quills, which in the early stages, when the general tint of the under parts is brown, are only faintly margined paler, become gradually, conspicuously tipped, and margined towards the tips, with somewhat rufescent white.

I should note that, at all stages before the bird becomes perfectly adult, some individuals exhibit a greater or less amount of imperfect barring, or spotting with pale rufous on the whole of the lower part of the mantle. This does not appear to depend on age or sex ; it is never seen in the quite young birds, nor in the perfect adult ; it is only in the intermediate stages, and two birds precisely resembling each other in every other respect may be met with, in one of which the spottings or transverse barrings will be conspicuous, while in the other, there will scarcely be a trace of such markings. The only thing I notice is, that where there are no spottings on the outer webs of the primaries, then there is none on the mantle, and where there is a good deal of the one, there is generally a good deal of the other.

It is, however, the tail of this bird which constitutes the ornithologist's greatest trial ; the tail really appears to be governed by no sort of rules, and to get through its changes quite independent of the other changes of plumage already described. In the quite young bird the two central feathers are absolutely unspotted, hair-brown, only faintly paler margined towards the tips ; the next two feathers on either side have one or two small pale rufous spots on the outer webs towards the tip, and about six similar but larger spots on the inner webs ; the next two are similar but have three spots on the outer web, while the exterior of all has only a trace of one spot on the margin of the outer web, the inner web being as in the others. All the laterals are tipped for about a quarter of an inch with dull white. In the

oldest bird I possess the whole of the tail feathers are tipped for nearly three quarters of an inch with white; of the centre feathers the shafts are brown above the white tipping, and the webs are pale rufous grey, with three faint circular white spots on the outer, and one similar one on the inner webs. The four next on either side have much the same ground colour, but have six large broad oval white spots on the outer web, whose major axis forms an angle of 45° with the shaft; while they have eight very broad oval white spots (whose major axis is perpendicular to the shaft) occupying nearly the whole inner web and becoming confluent at its margin. The exterior feather is similar, but the spots on the outer web are much smaller, and are on the margins of the feather. The intermediate varieties that occur are almost endless, but no such tail as that figured by Mr. Gould have I ever met with in any Indian bird, and I have now examined closely more than fifty. First, there is the tail with the two centre feathers (as in the bird first described) perfectly spotless, but of a paler and sandier brown, but the lateral feathers similar to those of the old birds as regards markings, except in having these somewhat smaller. Then there are the plain brown central feathers with one or two faint spots towards the tips as in Schlegel's figure. (*Traité de Fauconerie*). Then these same plain brown feathers with five or six well marked perfectly circular white spots on the outer margin. Then the same with smaller spots appearing on the inner webs; then again with the six spots on the inner web perfectly round, and those on the outer web becoming ovate; and then lastly the tail, the centre feathers of which, bear six pairs of oval spots extending from the shaft to near the edge of the feather.

It is to be noticed that all the while the spots are being developed on the central feathers; those on the lateral feathers are becoming larger, more ovate, and more barlike; those of the inner web extending quite to the margin, and gradually becoming confluent there. After the spottings of the central feathers have reached their fullest development, they appear gradually, as the bird grows older, to disappear, and though my oldest bird still shows three small round spots on the outer and one on the inner web of the central feathers, two of these are obviously disappearing, and probably would before long have disappeared entirely.

As regards Mr. Gould's figure, *Birds of Asia*, Part XX., I wish to point out that independent of the barred tail, brown be it observed barred with grey, a color that I have *never* seen on the tail of an Indian saker; no Indian bird with so brown a mantle and with such narrow rufous edgings could possibly it

seems to me have so white a head, or so generally white an under-surface. The youngest bird above described corresponds well, so far as the mantle goes, with this figure, but the prevailing color of the head is brown, and though the chin and throat is fulvous white the rest of the lower parts are of as deep a brown as the upper surface, only mottled pretty profusely with white. I really cannot make the figure out. The tail barred, the head that of an old adult, the mantle that of a quite young bird, the lower surface that of a middle aged bird, and the legs and feet bright yellow, a color never seen to the best of my belief at any age in our Indian saker.

The question remains is our Indian Bird, *Falco cherug et milvipes*, Hodgson, really identical with the bird known in Europe as *Falco saker*, or is it a very closely allied species, differing chiefly in the different stages of plumage which it passes through before attaining maturity? Schlegel's figure already referred to might do for a middle aged bird of ours, though I have never seen any specimen so brown above, and with so much white below, but Gould's figure (which looks to me more like an immature *Lanner*) finds no counterpart in the ample series that I possess of our Indian species. The question still requires investigation.

It will be seen that I no longer consider the Sakers with more or less barred upper plumage as distinct. In this Mr. Gurney agrees with me; he remarks *in epist* "My own impression is that the sakers which exhibit the transverse markings are *not* specifically distinct from those which do not exhibit them. It is a curious circumstance that when a saker has nearly reached the period for moulting, the circular spots on the tail will always be found *worn much thinner* than the surrounding portions of the feather, and in fact evidently do not wear so well."

As regards this latter point my specimens entirely confirm Mr. Gurney's view; in one, the round white spots are worn completely into holes, (which of course extend to the margins as the ends must drop when the intermediate portion goes,) in several, they are worn quite transparent, by the disappearance of the barbs of the feathers, within, and only within, the limits of the white spots.

There is another fact to be noted about these Charghs; some of them have the irides yellow, some brownish yellow, some brown. I have verified this myself and I have two specimens procured by Capt. C. H. S. Marshall in which he noted at the time that the irides were yellow.

11.—*Falco jugger*, Gr.

Not uncommon in Sindh, but not nearly so plentiful as in the better wooded and cultivated portions of India.

15.—Hypotriorchis æsalon, L.

A mere cold weather straggler into Sindh, and rare there. I only saw it once and then failed to secure it, but Capt. Malden informed me that he had shot it near Kotree, and Mr. James, c.s., had also procured a specimen. Before entering Sindh, I obtained an adult male on the banks of the river Jheelum below Jung. Length, 11; expanse, 24; tail, 5.2; wing, 8; tarsus, 1.5; foot, greatest length, 2.3; greatest width, 2.1; bill, from gape straight to point, 0.7; from edge of cere straight to point, 0.47; wings when closed reach to within 1.45 of end of tail. Weight, 0.7 lbs.

Legs and feet, yellow; claws, black; cere, very pale yellow; bill, dark slaty grey, paler at gape, greenish at base of lower mandible; irides, brown.

16.—Chiquera typus, Bp.

Not uncommon in Northern Sindh where it breeds, but rare apparently in the Kurrachee Collectorate. We repeatedly noticed and occasionally shot it between Jhelum and Kussmore.

17.—Tinnunculus alaudarius, Gm.

Numerically scarce, but occasionally noticed (a cold weather visitant only) throughout Sindh.

23.—Micronisus badius, Gm.

Not uncommon in the better cultivated portions of the Province, as for instance about Larkhana and Mehur where it breeds, but never, I believe, seen in the more desert and rocky tracts.

24.—Accipiter nisus, L.

Taking Sindh as a whole, this species is very rare, but in certain favored localities, such as the Munchur Lake, (where three were captured and brought me) a good many are seen during the cold season, these being I was told, almost without exception birds of the year.

? 26.—Aquila chrysaetus, L.

On two occasions, I noticed but failed to secure, huge eagles, one a manifest Ring-tail, which were certainly not *imperialis* and which I with some confidence refer to *chrysaetus*, as I should also similar birds observed on the Mekran Coast.

27.—Aquila imperialis, Bechst.

This species was like the next far more common than *fulvescens*. I met with it chiefly in the neighbourhood of large heels. I could not ascertain that it bred in Sindh.

28.—*Aquila nævia*, Gm.

This species was by far the commonest eagle in Sindh, and scores were to be met with in the neighbourhood of every large piece of water. Every clump of tamarisk trees standing well out into the water, as is so commonly the case in the broads of Sindh, was almost certain to be crowned by one of these black-looking eagles; else where I have generally found them subsisting almost exclusively on frogs, here to my astonishment, I twice shot them in the act of devouring fish, and on several occasions saw them strike at, and once or twice actually carry away, snipe and other small water birds that we had wounded. Whereas in other parts of the country outside the sub-Himalayan belt, *nævia* is a cold weather visitant, and most of the birds seen are young ones, in the strongly spotted stage of plumage; in Sindh the species is a permanent resident, and as I ascertained from the fishermen, regularly breeds there in April and May, and scarcely a single bird was obtained in any but the dark adult plumage, with more or less white tarsi. One fine female measured:—

Length, 28·4; expanse, 66; wing, 21; wings, when closed, reach to within 1 of end of tail: tail, from vent, 11; weight, 5·25 lbs. Another measured, length, 29; wing, 21·4.

29.—*Aquila fulvescens*, Gray. *Indians Frank*

This species was pretty common throughout the less desert portions of Sindh and in the neighbourhood of all the larger "*dhunds*," but much less common in lower Sindh; a fine female shot at the Munchur Lake, measured 28·5 in length; expanse, 66; and weight, 4·75 lbs. We got the eggs on two occasions.

33.—*Pseudaetus bonellii*, Tem.

One, two, or more pairs of this fine hawk eagle are to be met with about every large lake in Sindh making terrible havoc amongst the smaller water birds, and carrying off wounded fowl, before one's eyes with the greatest impudence. They breed in the Province and *inter alia* in the interior of the Khelat Hills in places where perennial streams issue from these. I killed a fine female in the interior of the Nurree Nai at the end of January from her nest, which then contained two young ones just able to fly. I saw another nest higher up the same stream, placed like the first on a shelf of a rocky cliff overlooking the water; this was inaccessible, but it contained, I could see, young birds. Another nest I found in the Gaj which contained, I think, eggs (very late for this species), but it also was quite inaccessible.

40.—Pandion haliaetus, L.

The Osprey was seen though not in any considerable numbers, both in the Indus, and about most of the larger pieces of water in Sindh, but on the coast it is much more common, and in the Kurrachee Harbour, I think I have seen nearly a dozen in the day. We saw it also on the Mekran Coast and at Muscat.

42.—Halæetus macei, Cuv. *leucoryphus*

I accept only provisionally Mr. Gray's verdict that our Indian bird is distinct from *leucoryphus*, Pall, of Southern and Eastern Europe, &c. Having had before him specimens from both localities, he ought to be correct, but *à priori*, I should doubt the distinctness of these two alleged species.

This noble fishing eagle was very common all down the great rivers from Jhelum to Sukkur, and again I noticed a few birds between Sehwan and Hyderabad; one, two, or even more pairs also frequented each of the larger lakes. We found several of their nests in large trees in the neighbourhood of the Munchur Lake, but all contained young birds.

42 bis.—Halæetus albicilla, L.

The European white-tailed sea eagle was tolerably common in all the great rivers, the Jhelum, Chenab, Sutlej, and Indus. Several pairs were met with at the Munchur Lake, and single individuals on other smaller inland waters. We killed a very fine adult male on the Indus, near Sukkur; but as a rule found the bird so much more wary than any other species, that I was unable to procure other specimens. I did shoot another, a very large female, but it got away at the time, fell into the water and was only accidentally picked up three days later when it was quite past cure. I first pointed out the occurrence of this species in India some years ago, having procured specimens (immature birds) in Etawah, and later I received a very fine adult from Murdan, in the far North-West. This species is not included in Dr. Jerdon's work, but will be found fully described at pages 257 *et seq.* of my Rough Notes, Pt. I., No. 2.

45.—Buteo ferox, Gm.

This species, in all its stages, abounds in Upper Sindh. It greatly affects the neighbourhood of jheels where the dark birds especially, the old adults, as I believe, were more common than I have anywhere else seen them.

48.—Poliornis teesa, Frankl.

Pretty common throughout Sindh, as it is indeed in all parts of India which I have yet visited.

51.—*Circus pallidus*, Sykes. *Swansoni*, Smith.

This was the only harrier, except *Circus æruginosus*, that I myself noticed in Sindh, and even this was far from common. I may repeat here (it seems so steadily overlooked in India) that the only ready and, as I think, unfailing diagnosis of females and immature birds of this species is, that, when the wings are perfect, the fourth quill is always shorter than the third, often by fully half an inch, while in *cyaneus* L., the fourth quill is fully as long as, and generally somewhat longer than, the third.

54.—*Circus æruginosus*, L.

The marsh harrier was excessively common, both along the great rivers of the Punjab and Sindh, and about all the inland waters of the latter province.

In Southern Sindh and generally in the arid tracts that compose so large a portion of the area of the province, we never saw it.

As I have already noticed in the diary, adults of this species were very rare; indeed I cannot be certain that we ever even saw any, and we certainly shot none.

55.—*Haliastur indus*, Bodd.

The brahminy kite was tolerably abundant about the Indus and on most of the larger lakes of Upper Sindh. I saw it but seldom in Lower Sindh, and never in the more arid portions of the province.

56.—*Milvus govinda*, Sykes.

Was of course common throughout the province. Along the Mekran Coast and at Muscat where I expected to get the yellow-billed kite (*milvus ægyptius*, Gm.) I never saw one single kite; they must have been away somewhere breeding, because, as I ascertained, kites are often seen at these places.

56 bis.—*Milvus major*, Hume. *Govinda* Sykes

I saw a few specimens of the larger Indian kite hanging about the dhunds of Upper Sindh; but I only succeeded in obtaining a single specimen. That this species is distinct from both our other Indian races, *M. govinda* and *affinis* is certain; it differs not only in its greater size, and generally more brightly colored plumage, but also in other particulars. In *major*, the chin and the greater portion of the throat (I speak of adults) are nearly white, while in *govinda* and *affinis*, they are whitey brown. In the young this difference is not so apparent, but with a series of the adults of all three species before one, it is very conspicuous. Again the pale tippings of the central feathers of the tail and of

the adjacent laterals are much more conspicuous in *major* than in either of the other species. Another difference, which though not absolutely constant, is yet highly characteristic of the adult *M. major*, is the much greater extent to which, in this species, the back of the tibio-tarsal articulation, and of the upper half inch or so of the tarsus, is feathered. In *govinda* and *affinis*, these parts are usually quite bare; they may be loosely overhung with feathers; but these can be brushed aside at once, whereas in adult *M. major*, they are densely clothed with silky feathers which, though they do not grow over the whole surface, yet sit so closely round it as to be with considerable difficulty pushed aside. This distinction does not hold good in the young. Perhaps, however, the most marked difference (independent of the great difference in size which may be estimated from the dimensions of the wings*) consists in the large pure white patch on the inner webs of the primaries of *major*; in *govinda* and *affinis*, the primaries have the inner webs more or less brownish white at the extreme base, and the rest of the web above the deep notch has large, mottled, irregularly oval transverse spots or imperfect bars of a more or less dingy white, while in *major* (strictly in accordance with its buzzard-like flight and habits) almost the whole of the inner webs above the notches is pure white. With the fresh birds before him, no one looking at the under surface of the extended wings, can ever mistake *major* for either of the other two species. This large white patch is conspicuously apparent when the bird is flying overhead. In this as in the other species, there is no very great difference in size between the sexes. As to the difference in the habits of *M. major*, there are no two opinions on the subject. Mr. Brookes says, "I have seen several *Milvus major* lately, two yesterday; there is no mistake about the bird, the flight is quite different, very slow, heavy, flapping, not more than two strokes to the common one's three. These birds sometimes quarter a marsh all over."

Writing from the Raipoor Division, Central Provinces, Mr.

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ADULTS.

Species.	Number of	Wings.	Number of	Wings.
	males measured.		females measured.	
<i>M. govinda</i> ...	7	17·5 to 18·	10	18 to 19·5
„ <i>major</i> ...	12	19 to 20·5	12	19·45 to 21
„ <i>affinis</i> ...	7	16 to 17·5	5	17 to 17·75

N. B.—*Affinis*, so far as I can make out, differs only from *govinda* in its duller tints and smaller size. Schlegel unites *melanotis* and *govinda*. I have specimens of the latter very nearly as brightly coloured as his figure of the former in the Fauna Jap. Mr. Gurney's remark that there is no appreciable difference between the young and old of *M. affinis*, does not hold good in the Indian *affinis*, though our adults are absolutely inseparable from Australian specimens.

F. R. Blewitt says, "All along, within and near to the forests, from Singhora to the end of the Lohara beat, I met with *Milvus major*. The length of the largest male and female which I procured, (and there seemed to be no material differences in the size of the sexes, though individual birds of each sex differed vastly according apparently to age,) was 27·7 inches, but, judging from the size of some of the specimens I failed to secure, I should guess that they run to 29 inches.

"Throughout the country above-mentioned, I daily saw numbers of this species particularly at the Rajun fair, where the birds collected in scores. On the plains it is very rare. As you very correctly state it is at all times a wary bird, it was only when curiosity induced them to fly over my camp, or when I enticed them with flesh or dead birds to approach nearer, that I could get to shoot them. Of the thirty and odd birds, only one was shot sitting. From *M. govinda* it is easily distinguishable by its larger size, form, colouring of the large wing feathers, and its more heavy flight. The two species on occasions associate, though battles are frequent between them."

Mr. Gurney had suggested and Mr. Blandford seems to think that *major* might be identical with *Milvus melanotis* of Schlegel figured both in the Fauna Japonica, and in Radde's work on the Siberian Avifauna. In the Fauna Japonica the wing of this species is given at from 18·9 to 19·7 inch. In his catalogue of the Leyden Museum, Schlegel identifies *melanotis* with *govinda*, and states, that the dimensions are those of *regalis*, of which he gives the wing at from 20·25 to 21·35 inch. The dimensions of the Fauna Japonica are, I apprehend, those most to be relied on, as they are actually recorded from specimens, whereas the catalogue statement "same size as *M. regalis*," is somewhat vague and loose. Be this as it may, the pure white wing patch of *M. major* distinguishes it equally from *M. melanotis* and the two other species that occur in India. Of *M. melanotis*, Schlegel expressly says, "The primaries are mottled with white near their bases;" moreover Mr. Gurney says *in epist*, "I asked the Curator of the Norwich Museum to examine our specimens of *M. melanotis* from Japan, and of *M. govinda* from China, some of which (especially the more Northern) seem to be a larger race than the Indian, and also our specimens of ordinary *M. govinda*." In reply he informs me, "that he cannot discover any such white patch as you mention as characteristic of *M. major*. In all the specimens the inside of the primaries above the notch is more or less mottled with white which does not appear to be more prominent in one species or race than in the others," it is therefore pretty certain that *M. major* and *M. melanotis* are distinct.

59.—*Elanus melanopterus*, Daud.

This species is plentiful enough in the Western Punjab, but it is comparatively rare in Sindh. I only procured one specimen, and only saw two or three others, and all these exclusively in Upper Sindh.

60.—*Strix indica*, Blyth.

This owl is by no means common in Sindh. The only place at which I saw it was Larkhana, and there I shot a pair. The female measured, length, 14·25; expanse, 39·5; tail from vent, 5·2; wing, 10·8; weight, 1 lb. 3 oz.; wing, when closed, reached to within 1 of end of tail. Tarsus, 2·75. Male length, 13·25; expanse, 37·5; wing, 10·7; tail from vent, 5·2; wings, when closed, reached to within 1·25 of end of tail; tarsus, 2·6; weight, 1 lb. In both the bills were pearly white, the feet horny grey; claws blackish, and irides brown. The two specimens illustrated admirably the different stages of plumage of this species. Above, the female was so closely speckled and pencilled with blackish brown and grey, as to leave scarcely any buff color visible from the forehead to the tips of the upper tail coverts, and the black and white spots were very large and numerous. In the male the buff predominated on the nape, back of the neck, and upper back, and was abundantly visible over the whole surface, and the black and white spots were small and inconspicuous. The whole lower surface of the female from the ruff down to the points of the lower tail coverts and the tibial plumes, was tinged pale buffy, and profusely spotted with comparatively large triangular brown spots; the whole lower surface of the male on the other hand was pure white, with a few minute brown speckles in the breast and down the sides. The male I take to be an old bird, the female quite a young one.

? 65.—*Bulaca ocellata*, Less.

I did not myself see any specimen of this bird, but Capt. Malden told me that he had shot a *syrrnium*, which he believed to belong to this species at Jacobabad. It was, however, he had noted, only 15·25 inches in length, so this identification is doubtful. Mr. Gray separates our Indian species under Latham's name of *sinensis*, from Lesson's *ocellata*, which he gives from Southern Asia. As the British Museum contains no specimen of what Mr. Gray considers Lesson's bird, I hesitate to adopt this view. So far as I can make out, the two are identical.

69.—*Bubo bengalensis*, Frankl.

I obtained a fine specimen of this owl at Jhelum. Saw it again

near Mooltan, and again near Mittencote; but did not myself observe it in Sindh. It has however been procured near the Munchur Lake, and there is no doubt of its right to find a place in this list.

70.—*Bubo coromanda*, Lath.

I saw this species once or twice in Sindh, and Dr. Day shot a specimen for me on the banks of the Indus, a short distance above Kootree.

76.—*Athene brama*, Tem.

This owl is very common in the better cultivated portions of Sindh; but I met with it occasionally also in the quasi desert tracts that fringe the bases of the rocky hills dividing Sindh from Khelat. It was particularly common about Sukkur.

82.—*Hirundo rustica*, L. *rustica*

Was more or less abundant in suitable localities throughout Sindh from Kussmore to Kurrachee.

84.—*Hirundo flifera*, Stephen.

I did not notice this species, but Capt. Maldeu informed me that it was common about Jacobabad in May, and I have received a specimen obtained near Hyderabad, during the inundation.

89.—*Cotile sinensis*, Gray.

This little bank-martin is abundant in all the great Punjab rivers and in the Indus. The sexes differ very little in size. Numerous specimens measured in the flesh, varied in length from 4.2 to 4.55; in expanse, from 10 to 10.4; wing, from 3.6 to 3.75; tail from vent, from 1.6 to 1.75; in weight, from 0.25 to 0.4 oz; the wings, when closed, reached from 0.2 to 0.4 beyond the end of tail. Some again that I have seen were smaller, and in other parts of India I have found them larger. Taking a large series, the wings vary from 3.3 to 3.8. I do not myself at present much believe in *Cotile subsocata*. Small specimens of *C. sinensis* scarcely exceed the dimensions given by Adam, and many specimens of *C. sinensis* have the dark irregular brownish black band across the breast, and the rump absolutely unicolorous with the back. These two points and the difference in size appear to be what are relied on as constituting the diagnosis of the species, and as far as I can judge, they are of no great value.

As for *Cotile riparia*, I have never seen an Indian killed specimen of this bird. Adam says, that it is common on the

Indus, and the rivers of the Punjab. I have shot on the Sutlej, the Beas, the Chenab, and the Indus, almost from their source to the sea; but I have never succeeded, though of late years I have been specially on the look-out for this species, in seeing or securing a specimen. This bird is very much larger than our Indian species, and has the dusky band on the chest very much more conspicuous.

91 *bis.*—**Ptionoprogne pallida**, Hume. *Stray Feathers*, No. I, p. 1.

I have already, *loc. cit.*, fully described this new species and have nothing now to add to what I then stated.

99.—**Cypselus apus**, L.

C. barbatus Temm. *MSS.*—*Sclater. Pro., Zoo. Soc.*, 1865, p. 599. *Tristram, Pro., Zoo. Soc.*, 1867, p. 887. *Gurney, Ibis*, 1868, p. 152. *Finsch. Trans. Zoo. Soc. read June 10th*, 1869. *Vol. VII.*, p. 213.

Dr. Sclater in his valuable monograph of the *Cypselidæ*, first pointed out that "there are two South-African specimens of a swift in the Leyden Museum, labelled "*Cypselus barbatus*," which differ from the European examples principally in their lighter color above, particularly on the secondaries and scapulars; in the white feathers of the gular patch presenting a narrow black central line, and in the feathers of the lower back, belly, and under wing-coverts being narrowly margined with white. Two examples from Natal, collected by Mr. Ayres, are similar. It is possible that this form may be entitled to rank as a species to which Temminck's MS. name may be applied. But it would be desirable to obtain more skins for comparison, particularly examples from other parts of South Africa." In 1867 *loc. cit.*, Mr. Tristram argued that this South-African representative of *Cypselus apus*, should be recognized as distinct under Temminck's manuscript name, on the ground that all known specimens from South Africa agreed in the peculiarities pointed out by Sclater. Mr. Gurney *loc. cit.*, appears to have accepted this conclusion. Gray however united *barbatus* with *apus* in his "Hand list," and Dr. R. Finsch in his careful paper on the birds of N. E. Abyssinia, and the Bogos country, demonstrated to my mind conclusively that *barbatus* is nothing but the young of *apus*. Professor Blasius' opinion which he quotes is peculiarly to the point. He says "your specimens are nothing more than the young of *C. apus*, and I cannot distinguish them from others collected in our country. I possess also such young ones from Nubia as well as old specimens from the Cape and Nubia, which agree in

darkness of coloration throughout with specimens from Germany."

All the specimens that I actually secured (for the bird scarcely ever ventured within shot) were young birds of the *barbatus* type; but I specially noticed the occurrence along with these of one or two decidedly darker birds, which doubtless were adults. I watched these birds very closely with a binocular at both Kurrachee and Muscat, and set down the dark birds as *apus*, and the lighter ones as a new species, but after reading up the passages above referred to, and comparing my specimens with one specimen of *apus* from Cashmere, and a series of this species from Europe, I entertain no doubt that both dark and light birds belong to one and the same species, the former being adults, the latter being birds of from five to nine months old.

I observed this swift about the rocky headland of Munora which guards the mouth of the Kurrachee Harbour and there shot two specimens, male and female, which measured respectively, Male, length, 6·8; expanse, 16; wing, 6·6; tail from vent, 2·9; closed wing reached to 1·4 beyond end of tail; weight, 1·2 oz. Female, length, 6·75; expanse, 15·75; wing, 6·3; tail from vent, 2·8; closed wing reached to 1·3 beyond end of tail; weight, 1·12 oz.

I observed these again off almost every one of the rocky headlands along the Mekran Coast as far as Gwader, and again I observed numbers about the cliffs of Muscat, and there shot three more specimens.

100.—*Cypselus affinis*, J. E. Gray. Ill. Ind.

Zool. pl. 35, Fig. 2. *C. abyssinicus*, Hempr. Ehrb.; and *C. galilæensis*. Antin.

The white rumped swift was met with once or twice in parties between Jhelum and Kussmore, but from Kussmore throughout Upper Sindh to Sehwan, I never saw it. At Sehwan, Kotree, and Hyderabad, it was abundant, and from Kurrachee again I met with it, wherever we landed, to Gwader.

At Muscat it was specially abundant.

My friend Dr. O. Finsch remarks, "Dr. Selater has already pointed out the identity of the Indian and African specimens of this species (Proc. Zool. Soc., 1865, p. 603.) After having examined numerous specimens from India, Palestine, Sennabar, (s. n. *caffer* in Mus. Hein.), the Blue Nile, Anamaboë (Gold Coast) St. Thomé, Ilha do Principe, and the Cape, I am quite of the same opinion as Dr. Selater, and can give some further additions to the knowledge of this species.

"The variableness in the intensity of coloring, the greater or

less extension of the white gular patch of feathers, and the existence of a more or less visible paler superciliary stripes are noticeable as in *C. apus*; young ones also show the whitish marginations on the feathers of the under parts."

In these latter remarks I entirely agree, and I would add that even in the same localities the birds vary very much in size, the wing varying from 4·8 to about 5·5 in Indian specimens. Dr. Finsch indeed gives the wing of specimens from the Blue Nile and St. Thomé at 5·6; but I have seen no Indian bird quite so large as this.

113.—*Caprimulgus mahrattensis*, *Sykes*.

Goat-suckers are very scarce in Sindh. I myself never succeeded in securing a specimen, except a single male of this species at the very northern boundary of Sindh, on the banks of the Indus. This specimen measured, length, 8·9; expanse, 20; tail from vent, 4·25; wing, 6·8; wings when closed, reached to within 0·55 of end of tail; weight, 2·25 ozs. The legs and feet were pale fleshy brown; the claws black; bill and irides, dark brown.

I am told that at Larkhana, Mehur, and near the Munchur Lake, goat-suckers have been often noticed. I hope local observers will preserve specimens and send them to me for identification.

117.—*Merops viridis*, *L.*

Pretty common all the year round in Upper Sindh; in Lower Sindh it appears comparatively rare. The Sindh specimens almost entirely lack the rufous tinge on the head; in fact in coloration as in geographical position, they are at the opposite end of the scale to the Burmese birds in which the rufous tinge on the cap is so conspicuous.

120.—*Merops ægyptius*, *Forstk.*

I myself failed to procure a specimen, as this species is not a cold weather visitant to Sindh, but it is common everywhere in Upper Sindh at any rate during the hot weather and rains, and I have received specimens procured there subsequent to my departure.

123.—*Coracias indica*, *L.*

The Indian roller, though scarcely ever met with in the desert portions of Sindh, is as common in the better wooded and cultivated portions of the province as elsewhere throughout India.

As might be expected they are typical *indica* birds without the slightest leaning towards *affinis* such as is so generally noticeable in specimens from the Terai below Darjeeling and Eastern Bengal generally.

125.—*Coracias garrula*, L.

Like *Merops aegyptius*, this appears to be only a hot and rainy season visitant. I procured no specimens, but Mr. James, c. s., has recently forwarded to me a fine adult killed during the summer. I may here mention that in going through a small collection of birds made during the last rains at Mooltan by Mr. T. Cox, c. E., I found no less than six specimens of this species, which there, as *indica* elsewhere, greatly affects the telegraph wires. From Peshawur and near Attock I have also had specimens procured during the summer. I have shot numerous specimens near Simla, and Captain G. F. L. Marshall kindly sent me one obtained at Nynsee Tal, which as Hodgson did not meet with it in Nepal is probably its Eastern limit in India.

129.—*Halcyon smyrnensis*, L.

This king-fisher is pretty abundant in Sindh and is met with every where alike on the great rivers, canals, streams, ponds, and lakes.

134.—*Alcedo bengalensis*, Gm.

I only obtained a single specimen of this smaller Indian race, in Sindh, and that was from the east of the Indus in the Rorec district. If it occurs at all west of the Indus, where it is replaced by the next species, it will only be, I apprehend, as a mere straggler. It is curious that the only *Alcedo* seen at Muscat, was the present and *not* the next species.

134 *ter.*—*Alcedo ispida*, L.

If I were disposed to manufacture new species, I should certainly christen the small Sindh king-fisher *Alcedo Sindiana*; as it is, I consider it a most interesting link between *Ispida* and *Bengalensis*, differing only from the English bird with which I have compared it by the comparative shortness of the bill, and in this respect corresponding more nearly with the king-fisher of Greece and the Holy Land. In size this bird is so conspicuously larger than the common *bengalensis*, that the difference cannot fail to strike the most casual observer, and this coupled with the much shorter bill compels me to identify it with *ispida* rather than *bengalensis*. I shot and preserved a con-

siderable number of these birds ; most of them I measured in the flesh, but it will suffice to subjoin the dimensions of a dozen.

		Length.	Expanse.	Wing.	Bill at Front.	Weight.
Males	(1)	7·6 inch.	11·1 inch.	2·91 inch.	1·45 inch	1·25 oz.
"	(2)	7·0 "	10·3 "	2·87 "	1·57 "	1·05 "
"	(3)	7·2 "	10·5 "	2·85 "	1·42 "	1·18 "
"	(4)	7·4 "	11·0 "	3 "	1·55 "	1·1 "
"	(5)	7·5 "	10·7 "	2·9 "	1·63 "	1·25 "
"	(6)	7·2 "	10·5 "	2·9 "	1·43 "	1·25 "
"	(7)	7·2 "	10·5 "	2·9 "	1·5 "	1·1 "
"	(8)	7·2 "	10 "	2·9 "	1·5 "	1·15 "
"	(9)	7·0 "	10·5 "	2·85 "	1·5 "	—
Females	(10)	7·2 "	10·5 "	2·83 "	1·4 "	—
"	(11)	7·0 "	10·9 "	2·92 "	1·5 "	—
"	(12)	7·3 "	11·0 "	2·9 "	1·53 "	—

Mr. Sharp's elaborate table of the comparative dimensions of *A. bengalensis* and *A. ispida* may be epitomized as follows :—

	Length.	Bill.	Wing.
<i>Ispida</i> .—England ...	6·8 to 7·5	1·6 to 1·7	2·95 to 3
" Green and Palestine...	6·7 "	7 1·5	2·95 " 3·1
<i>Bengalensis</i> .—Ceylon ...	6 to 6·5	1·65 to 1·75	2·6 to 2·85
India, Java, Malacca, Japan ...			
Labuan, Gilloole, Hainan, Amoy, Formosa ...			
<i>Bengalensis</i> .—Central Asia and Phillippines ...			
<i>Bengalensis</i> .—Cairo ...	6 to 6·5	1·6 to 1·7	2·9
	6·6	2	2·8

It will, I think, be seen that as regards length, our Sindh birds average fully as large as English *ispida*. The wings which in two birds out of three, measured 2·9 and upwards, average much larger than *bengalensis*, while the bills which in two out of three birds vary between 1·4 and 1·5, average much shorter than either species.

The peculiar western character of the Avifauna of Sindh renders the occurrence of this close approximation to *ispida*, all the more interesting. Some ornithologists will doubtless be disposed to consider the brevity of bill coupled with the greater length and bulk of body as entitling the Sindh race to specific separation, and those who do so, may call it *A. Sindiana* ; for my part I look upon it merely as an outlying race of *ispida*.

I found this species everywhere in Sindh from Kussmore, the extreme north-east point to the Hubb river at its south-western extremity. It is impossible to exaggerate the numbers in which this species is found along some of the small rush-fringed canals of Upper Sindh. In the immediate neighbourhood of Jacobabad, along perhaps, three or four miles of such a canal, I shot in a hour seven or eight, and saw at least twenty of these birds. In the large rivers, and large inland pieces of

waters, they are but rarely met with ; but in all the narrow water-courses, where the dense reeds on either bank bend curving over the stream, nearly meeting in the centre, these little king-fishers may be seen at every hundred yards or so, swaying to and fro on an overhanging stem, or gliding up and down the stream with a noiseless rapidity that baffles description.

I may note that compared with either *bengalensis* or *ispida* the plumage of the Sindh birds, as a body, seems considerably brighter, but this may possibly be due to the care with which my specimens were preserved and to their always having been kept carefully papered up from the moment they were skinned to the present time.

136.—*Ceryle rudis*, L.

This species was most abundant everywhere in the great rivers, and in all the larger pieces of water throughout Sindh. The females in this species appear to be somewhat larger than the males, and are at once distinguished by the single imperfect chest band, while the males have two, more or less perfect, pectoral bands.

147.—*Palæornis eupatria*, L. ; *Alexandri*., L.

I myself never met with this species in Sindh, but it is said to occur in some years as a straggler in the neighbourhood of Hyderabad. I obtained two specimens on the Jhelum near Pindadun Khan, and I saw it again on the banks of the Chenab, not far from Mooltan. I once saw a huge flock of this species flying round and round the minars of the Jumma Musjid at Lahore.

148.—*Palæornis torquatus*, Bodd.

Common all over Sindh wherever there are trees ; but that of course is in no means half the country.

158.—*Picus scindeanus*, Gould.

This species is more or less abundant throughout Sindh. While *Brachypternus dilutus* affects the sirris, shesum, and other large trees of the avenues planted along all roads in the neighbourhood of most of the stations in Sindh, the present species is almost entirely a denizen of the tamarisk jungles. There is no great difference in the size of the sexes, though the males are slightly larger. The following are dimensions taken in the flesh from a series of both sexes :

Males.—Length, 8·5 to 8·6 ; wing, 4·5 to 4·6 ; tail from vent, 3·1 to 3·2 ; expanse, 14·5 to 15 ; feet, length, 1·7

to 1·9; width, 1·4; closed wings reach to within from 1·4 to 1·6 of end of tail; weight, 2 to 2·25 oz.

Females.—Length, 8 to 8·5; wing, 4·4 to 4·7; tail, 3 to 3·2; expanse, 13·6 to 15; feet, length, 1·8 to 1·9; width, 1·2 to 1·5; closed wings reach from 1·2 to 1·4 of end of tail; weight, 1·5 to 2·1 oz.

This species is not confined to Sindh but extends upwards between the Indus and the Jhelum to the foot of the Himalayas. It is common in the salt range, and single specimens have been sent from Murdan, Peshawur, and Hazara. The width and color of the frontal band varies a good deal in different individuals; in width from an eighth to a quarter of an inch, in color from almost perfectly pure white to rufous brown. In the male the whole top of the head from the frontal band backwards to the nape is crimson; the feathers however are short and the dusky bases, even in the live bird, shew through a good deal.

? 168 *bis*.—*Dryocopus martius*, L.

According to the concurrent testimony of many persons in Sindh, an enormous black wood-pecker, with a red head, is found occasionally in certain trees, on the Khelat hills, a little way below the top of Duryalo. This can surely be nothing but the species above indicated.

182.—*Brachypternus dilutus*, Blyth, J. A. S., XIV., 550.

The golden backed wood-pecker is most abundant in all the many roadside avenues that since Sindh became a British Province have been carefully nurtured in the neighbourhood of every large town and station. In Roree, near Sukkur, Larkana, Hyderabad, and Kotree, and a score of other places, I have seen eight or ten in a morning, and I carefully preserved a large series.

Although for the sake of convenience I have retained Mr. Blyth's specific appellation, my conviction is, not only that the Sindh wood-pecker is in no way entitled to specific separation, but further that it is barely distinguishable as a local race.

My series of *B. aurantius* ranges over a considerable tract of country. The specimens are from Raipoor, Dacca, Cachar, Jhansie, Etawah, Saharunpoor, the Dhoon, and Gurhwal, and all that can be said for the Sindh birds is that as compared with *B. aurantius* from the various localities above enumerated, they have, as a body, less of the orange tinge on the back, and have

the spots on the coverts slightly more developed. This is merely taking them as a body, specimens of *aurantius* from the North-Western Provinces may be selected absolutely identical with the Sindh birds.

As for the other differences pointed out by Mr. Blyth they absolutely fail when tested by a comparison of any considerable number of birds. First he says *dilutus* is rather smaller, but in reality if any thing it is rather larger. The following are the dimensions of wings of males and females of Sindh birds from a great variety of localities:—Males, 5·5 ; 5·7 ; 5·7 ; 5·7 ; 5·5 ; 5·6 ; 5·7. Females, 5·75 ; 5·5 ; 5·5 ; 5·65 ; 5·8 ; 5·65.

The following are the wings of *aurantius* taken at random from different localities in India—males, 5·3 ; 5·9 ; 5·35 ; 5·25 ; 5·6 ; 5·5 ; female, 5·5. The Sindh bird therefore is certainly not smaller.

Secondly, he says, that the eye streak is less defined, but I cannot confirm this assertion ; individuals may be found in which the eye streak in *dilutus* is much better defined than in others of *aurantius* and vice versa ; thirdly, he says, the quills are broadly barred with white which is seen conspicuously in the closed wing, while in *aurantius* and *chrysonotus*, the white bars are narrow and inconspicuous. No such distinction can be drawn in practice between birds from Sindh and other parts of India. With a dozen specimens of each before one, it is quite clear that the breadth of the bars on the wing, so far as it varies, varies according to the individual ; and specimens from Sindh may be at once selected in which the wing bars are actually narrower than in other specimens of *aurantius*. When not overhung by the secondaries, as is so commonly the case in dry skins, the white bars on the primaries are equally conspicuous in the closed wings of both *aurantius* and the Sindh birds. Lastly, Mr. Blyth says, that there is a greater amount of white on the markings of the lower surface. I however can discover no such difference. In individuals both of *aurantius* and the Sindh birds, considerable differences as to the amount of black on the lower surfaces, especially on the throat is observable ; but it is a mere individual peculiarity, possibly dependant on age, and birds in which the black predominates may be as easily selected from the Sindh specimens as from those obtained from other portions of the empire.

After having carefully compared a large series of the Sindh birds with a similar series from other localities, I entertain no doubt that the former differ from the latter solely in the slightly paler tint of the golden back in which an orange shade is scarcely ever traceable, and in the slightly more conspicuous character of the spots on the wing coverts, even these differences

however not being absolutely constant.

I may note that specimens from Dehra Ghazee Khan where the birds appear at the beginning of the hot weather, temporary visitants from Khelat and Afghanistan, are apparently slightly paler and still more conspicuously spotted on the wing coverts than the Sindh specimens. Following Mr. Blyth's example, these ought to be separated as *dilutor*! I set my face however against this hair-splitting.

188.—*Yunx torquilla*, L.

I observed this occasionally in the neighbourhood of stations, and elsewhere where acacia (babul) trees were pretty plentiful. In the more desert portions of the country, it is, I believe, unknown.

212.—*Coccystes Jacobinus*, Bodd.

Not observed in Sindh during the cold weather, but Mr. James, c. s., has recently sent me a specimen obtained in September, in a garden on the banks of the river Lyaree at Kurachee. Mr. James remarks, that he has never met with it elsewhere in Sindh. It seems I may note that Bodd's name above given, has precedence of Gmelin's, better known and most appropriate designation *melanoleucus*.

214.—*Eudynamis horonata*, L. (= *orientalis* apud Jerdon).

The koel, was very seldom seen in Sindh during our stay, but Capt. Malden informed me that he had killed it more than once at Jacobabad.

It seems to be generally admitted that *E. orientalis*, L., is a Ceram or Amboyna koel, or from Ternate, Timor and Amboyna, as Gray gives it. Anyhow it is not our Indian bird, which, according to Mr. Gray, stands as *horonata*, L. Lord Walden gives it as *honorata*, L. (Ibis, 1869, p. 338,) but this is probably a clerical oversight.

217.—*Centropus rufipennis*, Illiger.

The crow pheasant, as the larger Coucal is commonly called in India, was very abundant all along the banks of all the larger rivers wherever tamarisk jungle occurred; again wherever this bush, or tree, as it sometimes grows to be in Sindh, fringes the margin of any swamp or lake, there some pairs of this species are pretty sure to be seen trotting about on the ground with tails carefully lifted up, or threading their way through the branches with the peculiar serpentine motion they adopt in moving through thickets. In Lower Sindh, they are less common.

234.—*Arachnechthra asiatica*, L.

The common honey-sucker seems very abundant all over Sindh. All the specimens obtained up to the middle of February were still in winter plumage. I fully expected from the general character of the fauna to meet with *A. osea*; but though I shot honey-suckers purposely in every locality, they all turned out to be nothing but the common Indian bird.

254.—*Upupa epops*, L.

All the hoopoes I saw belonged to the European race; larger in size and everywhere paler in tint than our Indian birds, and with a conspicuous sub-terminal white band on the posterior feathers of the crest. The bird was very common from Kussmore to Kurrachee, and again I saw a single specimen at Gwader.

256.—*Collyrio lahtora*, Sykes.

This shrike though not numerically anything like so abundant as *C. erythronotus* or *a fortiori* *Lanius arenarius*, was still met with everywhere throughout Sindh. I have not worked up the subject myself, but Mr. Gray restricts *Lanius*, L., to *cristatus*, *phanicurus*, *magnirostris*, *arenarius*, *senator*, *rutilans*, &c., and assigns most of the other shrikes to Moehr's genus *Collyrio* (1752).

257.—*Collyrio erythronotus*, Vigors.

Very common throughout Sindh; most abundant in the better cultivated portions of the country, but found, though more sparingly, even in the semi-desert tracts. All the Sindh birds are true *erythronotus*, with the rufous running up the scapulars; but as usual they vary very much in tint; in one specimen the grey of the head and upper back is pure and comparatively dark, and runs unchanged on to the black frontal band; in another it is much paler, and the whole front of the head is a nearly pure white dividing the grey of the occiput and nape from the black frontal band.

260.—*Collyrio vittatus*, Dum. *Hardwickii*, Gr.

Not uncommon in the better cultivated portions of Sindh, but never observed in the more barren localities.

262.—*Lanius arenarius*, Blyth. *Lanius Isabelinus*, H. & E.; Strickland, *Pro. Zoo. Soc.*, 1850, p. 217, No. 46.

There is not in my mind the smallest doubt that *Lanius arenarius* and *Lanius isabellinus* are one and the same species.

Blyth's name was published in 1846, J. A. S. XV., p. 304. Ehrenberg's name is said to have appeared in Symb. Phys. i fol. e note, but I have not this latter work, and I am therefore unable to decide which name is entitled to priority.

Mr. Strickland *loc. cit.*, remarks of *isabellinus* : " This species is pale fulvo-cinereous above, cream-colored below ; rump and tail rufous, a broad blackish band from the nostrils to the ear coverts, margined above by a whitish streak. It much resembles *L. arenarius*, Blyth ; but is of a more cinereous tinge above, and is distinguished from that and all the allied Asiatic species, by possessing a conspicuous white band at the base of the fourth to the ninth primaries. The specimen from Kordofan has an obscure dark transverse band near the tips of the rectrices." Mr. Blyth says, " A marked variety of *L. melanotis*, (= *L. cristatus*, Linn.,) for it can scarcely be admitted as a separate species, was found abundantly by Captain Boys in the country lying between Sindh and Ferozepore. It is distinguished by its pale coloring, a predominant dull, sandy grey, scarcely tinged with rufous, except on the rump and tail ; the lores being whitish in a male and female, presented to the Society by Captain Boys ; but with a slight black spot joining the orbit above. If regarded as new, *L. arenarius*, nobis."

Now the shrike to which both these descriptions equally apply is common as a winter visitant throughout the greater portion of the plains of Punjab, the whole of Rajpootana, and Sindh. The name *arenarius* is peculiarly appropriate, because wherever within these regions sandy and semi-barren wastes extend, there this shrike is particularly numerous.

Eastwards, beyond the limits above indicated, this species is only a straggler ; but I have one specimen from Etawah and I have seen it in the Agra district, and I may here notice that within the limits above assigned to this species. *L. cristatus* never, to the best of my knowledge, occurs. Throughout the extreme west of India, the western Punjab, and Sindh, this species is abundant to a degree, and during our whole trip from Jhelum to Kurrachee, I do not remember having failed to see it on any one single day. I saw it again along the Mekran Coast to Gwader, and procured it in Muscat. Westward we know that it is found in Afghanistan, and Kordofan, and Erhenberg described it, I believe, from Northern Arabia.

The color of this species varies a good deal. Lord Walden's figure in the Ibis of *isabellinus*, 1867, p. 224, is too dark for any specimen that I have seen, and ~~much too dark~~ for Strickland's or Blyth's description ; but still freshly moulted birds make an approach to Lord Walden's description ; birds as we usually

obtain them in the winter answer exactly to Strickland's, while, those somewhat bleached correspond perfectly with Blyth's.

The wing spot from the fourth to the ninth primaries, which I believe is what has mainly led to the separation of the two species is easily explained ; only the perfect adult male exhibits it. Young birds of both sexes never shew the slightest trace of it, and amongst the adult females, only perhaps one or two in twenty have a small yellowish white line, where the white patch would be in the adult male. In the young birds of this as in other species the breast feathers are more or less variegated with very narrow crescentic brown bands. So long as any of these are traceable, you may look in vain for the white wing spot ; but even after these have all disappeared, it is not until the line in front and behind the eye becomes black, instead of blackish brown, that you may expect to find the white wing bar conspicuous. Out of nine males, shewing no other sign of nonage which I brought from Sindh, six only have the eye streak really black ; and all these exhibit the wing bar most distinctly ; of the other three, with browner eye streaks, two shew only a trace, and the third, no indication whatsoever of the wing bar. The females never have the streak behind the eye as dark as in the males, while of the continuation of that line in front of the eye they exhibit only a trace. The young birds in neither sex, so long as the crescentic markings are pretty numerous on the lower parts, shew much trace of the antocular black spot, so large and conspicuous in the perfect adult male. It may here be noticed, that at least two-thirds of the birds met with in India in the cold season are young, the lower plumage more or less varied, with crescentic lines ; of the remaining one-third at least one-half are females, the remaining one-sixth only are adult, or nearly adult males ; of these again about one-third have not yet acquired the thoroughly black eye stripe, or the well marked white wing band ; in fact, it is only about one in every nine or ten birds that do clearly exhibit this characteristic. The bird is very tame and will often allow you to walk up within twenty yards of it, and scrutinise it carefully with a pair of binoculars, and as in the live bird the white spot is quite perceptible even when the wing is at rest (in dry skins the secondaries almost always overlay it) I was able to procure a much larger proportion with the white spot, than I could have done had I merely shot them at random.

Lord Walden remarks of *arenarius* that in the specimen before him, " The centre pair of rectrices, at about one-third of their length from the end display a well marked, irregular, light-colored transverse band, a good distinctive character if found to

be constant in all examples." This character is however not only not constant, but absolutely exceptional, as is also the "obscure dark transverse band near the tips of rectrices" alluded to by Strickland. I myself have never met with a single specimen exhibiting exactly these peculiarities; the central tail feathers at all stages are slightly darker and less pure than the laterals, and are throughout their entire length obscurely and narrowly banded, darker and lighter, obsolete barrings scarcely noticeable in the adults, but more conspicuous in the young birds, in which, moreover, the central rectrices have a more decidedly brownish tinge. At all ages the rectrices are inconspicuously and narrowly margined and tipped paler.

There is but little to be said about the habits of this species; it is no friend to the more richly cultivated and irrigated portions of even Sindh; in Larkana for instance it is far less common, but in the barer portions of the country where here and there a few stunted tamarisk or acacia bushes sparsely dot, what in the cold weather seems a barren waste, *L. arenarius* is to be met with, perched on the top-most twig of almost every other bush, from which it makes, from time to time, short excursions on rapidly beating wings, and after a moment's pause upon the sand, to devour some grasshoppers, or fly, returns, unless disturbed, to its former perch. I have measured a great number of these birds in the flesh, and perhaps the following dimensions may be useful.

The sexes do not differ materially in size, but the wing of the female averages perhaps smaller.

Length, 7.13 to 8; expanse, 11 to 11.75; wing, 3.35 to 3.7; tail from vent, 3.13 to 3.75; tarsus, 0.88 to 1; bill straight from forehead to point, 0.5 to 0.62; from gape, 0.7 to 0.82; weight, 1.1 to 1.25 oz; the fourth, or third and fourth primaries longest; the first from 1.65 to 1.85; and the second from 0.3 to 0.42 shorter than the longest. The closed wings fall short of end of tail by from 1.94 to 2.25; the legs and feet are black or very dark horny brown; the irides brown; the bill is black, blue-black, or dark horny brown, whitish, pale fleshy, or paler brown at base.

265.—*Tephrodornis pondiceriana*, Gml.

Not uncommon in the better cultivated regions where babul trees (*Acacia Arabica*) which it especially affects, are tolerably abundant, but seldom seen, in fact I never met with it at all, in the more barren localities.

276.—*Pericrocotus perigrinus*, L.

The Sindh birds are peculiarly pale colored; the males have the upper surface a pale grey, the same color exactly as the head and nape of *Collyrio erythronotus*; the rump is just tinged

yellow; the upper tail coverts bright orange scarlet; the wing spot is a pale yellow just tinged with orange; the lateral tail feathers are white, tinged with orange yellow on the inner web; the chin and throat slaty grey, a patch of orange on the breast and a yellowish tinge on the sides. The females are a still paler grey, the upper tail coverts pale orange, the whole lower surface pure white; the wing patch and the lateral tail feathers white, with the faintest possible yellowish tinge.

Mr. Gould figures this species in *Birds of Asia IX.*, pl., 5 and in this he represents the red of the male very much like that of *brevirostris*, I mean *brevirostris westward* of the Ganges, for the Darjeeling birds are *much* more deeply, and brilliantly colored. Mr. Gould himself remarks "most of my specimens from the northern parts of India are lighter in color than those from Madras and Ceylon, the coloring of their upper surface being a light grey, while a corresponding paleness occurs in the scarlet of the under surface; in size and relative admeasurements, however, I find little or no difference; I am inclined therefore to consider them as mere varieties.

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A specimen in the collection of Dr. John Murray, Civil Surgeon at Agra, differs in having all the colors of a much lighter hue; the mark on the wing yellow, stained with scarlet; and the under-surface yellow, washed with scarlet on the breast."

I myself have never seen a specimen of this species anything like so brightly colored as Mr. Gould figures it, but I have unfortunately only one Southern Indian, and that although doubtless darker than Upper Indian birds, still in no way approaches Mr. Gould's figure. As far as I can make out, in the first place, the bird varies in intensity of color very markedly according to locality, the deepest colored being from the Peninsular of India, then Lower and Eastern Bengal and Eastern portion of Central Provinces somewhat paler; rest of Central Provinces, North-West Provinces, and Punjab, paler still, and the Sindh birds much the palest of all. Besides this variation according to locality, these birds, to the best of my belief unlike the other Indian *Pericrocoti*, assume a markedly brighter plumage in the breeding season.

278.—*Buchanga albirictus*, Hodgs.

The Sindh specimens are typical, fine birds nearly 13 inches long, and expanse close upon 19 inches.

292.—*Leucocirca aureola*, Vieillot.

Rare in Sindh as a whole, but common along the banks of the Indus, and in the neighbourhood of many of the canals.

Mr. Gray gives Franklin's name *albofrontata*, priority of *aureola* Lesson, but according to Pucheran, this bird is "*Rhipedura aureola*," V., and if so, this name should stand.

323 bis.—Erythrosterna parva, Bechst.

I only saw specimens of this species in the neighbourhood of Sukkur.

351.—Petrocossyphus cyanus, L.

In the level cultivated and irrigated tracts of Sindh, this species was never met with, but it was by no means uncommon in the rocky hills that divide Sindh from Khelat; and where, at rare intervals, perennial streams such as the Gaj, and the Nurree Nai flow through them, it is abundant. I met with it in several localities along the Mekran Coast, and I shot and preserved a specimen from Muscat.

356.—Geocichla unicolor, Tickell.

I myself never met with this species in Sindh, but Captain Malden informed me that he killed a specimen at Jacobabad on the 7th February, 1867.

365.—Cichloides atrogularis, Tem.

In the better cultivated portions of Upper Sindh especially in and about groves and gardens, this species was very common. We used continually to see it busy on the ground in the thick brush-wood, turning over leaves in a most systematic and business-like manner. I particularly noticed it on one occasion working a large patch of dead leaves backwards and forwards as a pointer would a field of turnips. Occasionally it was also seen in localities entirely devoid of trees feeding in the irregular patches of a kind of mustard that is so generally grown throughout Sindh. About Hyderabad I again noticed it, and strange to say obtained two fine specimens, one a male, in nearly full breeding plumage, at Gwader on the 19th February.

385.—Pyctorhis sinensis, Gmel.

This species is abundant in Sindh along the banks of the Indus, wherever there is long grass. Again, between Jacobabad and Sukkur, I saw it in greater numbers than I have ever I think elsewhere noticed it, unless perhaps in the Eastern Jumna Canal in the Saharunpoor district. It is not so common about the inland waters, but even here I saw it occasionally. In the arid tracts, which so largely predominate in this province, it was never met with.

432.—Malacocercus terricolor, Hodgs.

The Sindh babblers are not exactly typical *terricolor*: they are to a certain extent intermediate between this and *malabaricus*; that is to say, they have the striations of the back caused by the light centering to the feathers much more conspicuous than in typical *terricolor*. The distinctness however of *malabaricus* and this latter is, I think, very questionable; on the one side of India these Sindh birds form to a certain extent a link between two; on the East again, birds from Raipoor, form another connecting link, decidedly nearer to *malabaricus* than *terricolor*, and absolutely identical with specimens from Seegore on the north-eastern slopes of the Neilgherries; while a specimen from Coonoor on the south-eastern slopes of the Neilgherries is intermediate between these and the typical *malabaricus*, which I have both from Ootacamund and Kullar, on the south-west slopes of the Neilgherries.

Mr. Blyth, I note, identified this species with *canorus*, L., but Mr. Gray I see considers this to be a Chinese species. and I have therefore retained Mr. Hodgson's name.

438.—Chatarrhea caudata, Dum.

Common everywhere, even up in the bare rocky hills, where scarcely a single other living thing was seen. Near Kussmore I fancied that I saw, *C. Earlei*. Bl., but I secured no specimen and never noticed it again, so I was probably mistaken.

443.—Laticilla Burnesi, Blyth.

I first met with this species on the banks of the Chenab near the junction with the Indus. I next found it on the banks of the Indus near Mittencote. Then again it was comparatively abundant between Sikarpoor and Sukkur, near Larkhana, and subsequently in several other localities in Upper Sindh. It was only found in high grass jungle, was almost impossible to flush, and when once disturbed, climbed about in the interior of the reeds and grass, very seldom indeed affording a chance of a shot. I procured a considerable number of specimens, but they cost me far more trouble than any other bird I met with in Sindh except *Cettia sericea*, Natt. which latter is the *ne plus ultra* of little skulls.

The following are the correct dimensions, &c., of this species. I may premise that the sexes do not differ materially in size. Length, 7·3 to 7·7; expanse, 6·2 to 7; tail from vent, 4 to 4·8; wing, 2 to 2·3; tarsus, 0·85 to 0·9; hind toe and claw, 0·51 to 0·54; bill at front, 0·4; from gape, 0·6 to 0·65. The legs and feet are pale horny brown, or brownish fleshy; the bill

is a horny brown, pale fleshy on lower mandible; the irides are brown. Weight, 0·45 to 0·7 oz.

Description.—The lores, and a circle round the eye, pure white. The whole upper parts olive brown, paler and yellower on the head, and somewhat conspicuously tinged with rufous on the back and sides of the neck, each of the feathers of the head, back, and sides of the neck, upper back, and scapulars with a dark brown central stripe; the rump and upper tail coverts unstriated; the tail olive brown, the central feathers very broad, in good specimens 0·6 in width, obsoletely barred (as are the laterals also, though less conspicuously so) somewhat darker; the lateral tail feathers very narrowly margined at the tips with fulvous white and equally narrowly margined on the outer webs slightly paler, and more rufescent. The tail, when perfect, consists of *twelve* feathers, very much graduated; the external tail feathers are nearly 2·75 shorter than the central ones, and barely exceed the lower tail coverts; the ear coverts are mingled grey and white. From the base of the lower mandible on either side of the throat, a double line of little brown spots descends below the eye and ear coverts. The lower tail coverts are deep ferruginous, the vent feathers, sides, and flanks, tinged brownish, the feathers of the two latter with narrow yellowish brown central streaks; the rest of the lower parts pure white; wing lining, brownish white. The fifth and sixth quills are equal and longest; the fourth is about 0·05 shorter; the third about 0·23, the second about 0·5, and the first, 0·9 shorter than the fifth. In some specimens the ground color of the head, especially towards the forehead, is almost albescent; in others again the rufous tinge on the back of the neck is much more conspicuously marked.

459.—*Otocompsa leucotis*, Gould.

This white-eared bulbul is perhaps the very commonest bird in Sindh, and in the early sunny mornings it might be seen and heard singing most sweetly from the topmost sprays of all the larger tamarisk bushes. It is a very tame, familiar, cheerful little bird, and almost if not quite the only songster Sindh can boast. Common as it is throughout the Punjab, Rajpootana, and the upper portion of the North-West Provinces, it is even more so in Sindh. It occurs also on the Mekran Coast as far as Gwader. Jerdon's dimensions are somewhat small, a male measured at random in the flesh was, length, 8; expanse, 11·3; tail from vent, 3·5; wing, 3·7; wings when closed, reached to within two inches of end of tail.

The color of the lower tail coverts in this species varies from

a bright pale gamboge to a saffron yellow.

470 bis.—*Oriolus galbula*, L.

A very considerable number of western forms such as the Egyptian bee-eater, and the European roller, visit Sindh, but only during the inundation. The golden Oriole is one of these. We of course never saw it, but Mr. James, c. s., has recently forwarded to me a specimen procured early in September in a mango grove close to Kurrachee. There is no mistake about the species, the much larger size, the longer wing (all but 6,) the comparatively smaller bill and the entire absence of black behind the eye, separate the bird as clearly as possible. Mr. James never remembers to have seen another, but I do not doubt that if search be made next August and September, plenty of others will turn up.

480.—*Thamnobia cambaiensis*, Latham.

Although I have identified the Sindh birds with this species, it must be understood that the Sindh specimens are exactly intermediate between typical *fulicata* and *cambaiensis*. The backs of the males are much too dark for the one and not dark enough for the other; and here I may notice that these birds are precisely similar to some I obtained in Guzerat, in the neighbourhood of Ahmedabad, and again at Aboo and Jodhpoor. If the name had any real significance, these ought to be the true *cambaiensis*, and the southern and northern birds should be treated as merely darker and lighter races of this one species; *fulicata*, however, has the priority, and must stand, but nevertheless I myself question the necessity of acknowledging any second species. In the South we have one race, in the North another; typical specimens of each race contrast together strongly, but when we come to look into the question, we find that between these two types every possible intermediate link is to be found; under such circumstances I personally would include both types as local races of one species.

481.—*Pratincola caprata*, L.

The Sindh black robin runs perhaps a trifle larger than the common Upper-Indian bird. A Sindh male measured length, 5·7; expanse, 8·5; tail from vent, 2·9; wing, 2·8; specimens of *caprata* of Upper India (males) vary in length, from 4·88 to 5·3; expanse, 7·88 to 8·5; wing, 2·4 to 2·75; tail, 1·7 to 2. Birds from Saugor and Hoshungabad seem slightly larger; Neilgherry birds average, length, 5·5 to 5·7; expanse, 9·8; wing, 3; tail from vent, 2 to 2·2; Upper-Indian and Sindh birds do not exceed

0·62 oz. in weight, and I do not think they average as much as 0·5 oz. The Neilgherry birds (*P. bicolor* as it is commonly designated) weighs up to 0·75 oz., and averages 0·63.

Except this small difference in weight, I do not really see any constant or sufficient difference between the Neilgherry and Ceylon birds, (for I have a specimen from Ceylon absolutely identical with Neilgherry ones) and those of the rest of India. Two specimens from the immediate neighbourhood of Madras are fully as large as any Neilgherry one, and between the largest Neilgherry bird with a wing, 3·15; (and practically they rarely exceed 0·3;) to the smallest Upper-Indian bird, with a wing, 2·4, every size of wing may be met with in intermediate localities.

I very much doubt the propriety of retaining *atrata*, Blyth, *bicolor*, Sykes, as a distinct species; all that can be said is that Northern-Indian specimens of *caprata* are generally smallest, Central-Indian, Goojerat, and Sindh birds intermediate, and Southern Indian and Ceylon birds, largest.

This species was pretty common everywhere in Upper Sindh; but perhaps somewhat rarer in the southern portions of the Province.

* 483.—*Pratincola rubicola*, L.

I do not think that under any circumstances the most typical examples of the so-called *Pratincola indica* deserve specific separation. On examining a large series of say thirty or forty specimens, collected in different parts of India from North to South, it will be found that these readily divide into three groups. 1st, birds absolutely identical with European specimens (I say this after comparing them with a large series of European birds); 2nd, birds of the true *Indica* type smaller, and much blacker; 3rd, intermediate specimens which it is difficult in many cases to assign preferentially to either group.

It is true that as far as my experience goes, typical *rubicola* does not breed in the Himalayas; but comes to us as a visitant from beyond these, while typical *Indica* breeds throughout the lower ranges of the Himalayas; but these facts do not in themselves in my opinion in the face of the unbroken series of connecting links that exist, justify a specific separation.

Be this however as it may, the great majority of the Sindh birds, (and the stone chat is very common throughout the province) clearly belong to the *rubicola* type. Indeed though some of the birds are intermediate, I did not succeed in securing a single typical *indica* between Jhelum and Kurrachee.

* 484.—*Pratincola leucura*, Blyth.

This species was very abundant, but only in particular localities, in Sindh. I obtained a single female in reeds standing

out in the water near the junction of the Ravee and Chenab, and again in a very similar locality near the junction of the Chenab and the Sutlej. With these exceptions I never saw the bird except on dunds as the Sindh broads are locally designated. In all these where the water was as it were paved with the leaves of the lotus and singhara (*Trapa Bispinosa*) and dotted over with tiny clumps or single stems of reeds, and flowering grasses, the white-tailed chat might be seen perched sideways on one of these wind-swayed reeds, every now and then darting down on to one of the lotus leaves, seizing some insect there and returning to its previous perch, instantly recognizable when on the wing by the great amount of white in the tail.

Outside the high-water mark, I never saw a single specimen; twenty yards from the water's edge, *rubicola* was abundant, but *leucura* was never once seen. I know that this is scarcely in accordance with Dr. Jerdon's experience elsewhere, but I paid particular attention to this species, never having before seen it. I shot a very great number both of it and *rubicola*, and in the whole of Sindh, I never once succeeded in obtaining a single specimen of *leucura* really well outside high-water mark, while inside, they abounded on every large inland piece of water, being often, as in the Munchur Lake, two or three miles away from the nearest dry land. The males are as like *rubicola* as they can possibly be, except as regards the tail, which has the central feathers a paler brown than those of *rubicola*, margined conspicuously with yellowish white, and the whole of the rest of the tail white, except the tips of the feathers on both webs which are pale brown, with a somewhat darker brown stripe running up the shafts for from half to two-thirds of their length. Perhaps, on the whole, the breast is also paler. The females are excessively close to those of *rubicola*, and in fact are scarcely separable from them except by the pale hue of all the lateral tail feathers, and the more conspicuous pale margins of all the tail feathers.

489.—*Dromolaea picata*, Blyth. 490. *Saxicola capistrata*, Gould.

I have already in "Stray Feathers" Vol. 1, p. 3, recorded my conviction of the identity of these two supposed species, and I shall here deal with them as identical.* They abound throughout the whole western Punjab, and in Sindh to the very foot of

* Mr. Gray, I see, actually puts *capistrata* under *Saxicola* and *picata* under *Dromolaea*! but accidents like this will occur; an equally great authority, but in another branch, Ichthyology, has placed the young and old of the same fish in different families.

the hills. They are met with, like the stone chat, always perched on the top of some bush, low tree, or pointed stone in the wildest and most desolate parts of the country; continually flittering their tails, redstart-like and perpetually darting away from their perch to capture insects both on the ground and in the air; active restless little birds, their glossy black and snowy white plumage is often the only thing that catches the eye in the midst of a dull brown desert like expanse of sand and grey weather-beaten rocks, and stone interspersed with a few straggling blades of withered grass, and stunted scorched-looking, camel-browsed acacia bushes.

I quite concur in the distinctness of *leucomela* Pallas, and *capistrata* which, as I have already explained, I consider one stage of *picata*. The bill in *leucomela* is markedly larger, whilst the wing in *capistrata* is nearly a quarter of an inch longer; the lower tail coverts in *leucomela* are a decided buff instead of being only faintly tinged with that color as in *capistrata*. Again, at least the half of the inner webs of the quills of *leucomela* are pure white; in *capistrata*, they are uniform blackish brown. Lastly, the black on the tips of the lateral tail feathers is much more extended in *capistrata* than in *leucomela*.

Talking of the white patch in the inner webs of the wings of *leucomela*, I notice that *Saxicola melas*, Licht. of Rüppell's "Neue Virbl. Tab. 28, fig. 2, exhibits the same peculiarity.

It may be useful to notice in connection with the identity which I assert of *capistrata* and *picata*, that similar duplicate forms distinguished only by the presence or absence of the white head, exist amongst the Nubian *Dromolaea*'s, and though at present considered distinct, are, I submit, not impossibly merely different stages of the same species.

489 bis.—*Dromolaea alboniger*, Hume. *Stray Feathers*, Vol. I., p. 2.

I have already fully described this species and pointed out *loc. cit.*, its distinctness from *picata*, and I have now only to add to what I there mentioned, that the type specimen was procured in the interior of the Nurree Nai in the hills west of Sehwan. I may however remark that in this species there is an almost entire absence of that pale fulvous fawn tinge which usually characterises the lower tail coverts of *picata*.

Since writing my former note, I have obtained a specimen of *leucopygia*, Brehm. I find that this species has the white head of *monacha*, and the whole breast and abdomen black, it is therefore quite distinct from *alboniger* and equally so from *monacha* to which it approximates in the pure white laterals.

490 bis.—Dromolaea monacha, Rüppell. Pl. Col. 359. *S. Gracilis*, Licht.

When characterising *S. alboniger* (Stray Feathers, No. I. p. 2,) I mentioned that this present species which had never previously been recorded as pertaining to our Avifauna was not uncommon in the same localities as those in which *alboniger* was found, viz., in the bare rocky hills dividing Sindh from Khelat; and in the similar hills which run along the Mekran Coast. There is nothing in the habits of this fine wheatear to distinguish it from its congeners, and I shall therefore now only give measurements (recorded in the flesh) and descriptions taken from my Sindh and Mekran specimens.

Length, 6.75 to 7.25; wing, 4 to 4.2; tail from vent, 2.5 to 2.75; tarsus, 0.9 to 0.95; bill at front, 0.62 to 0.65. The females run somewhat smaller than the males.

The adult male has the whole forehead, crown, occiput, and nape, lower back, rump, and upper tail coverts, abdomen, flanks, and lower tail coverts, and the whole of the tail feathers, except the terminal three-fourths of the central pair, and a streak at the tip of the outer webs of the external laterals, (which terminal three-fourths and streak are brown,) pure white, with, in some specimens, a very faint yellowish tinge, here and there.

The lores, cheeks, ear coverts, chin, throat, breast, wing lining, and axillaries, upper back, scapulars, and lesser wing coverts, black; the feathers in some specimens more or less tipped, but very narrowly with slightly fulvous white, and the row of small under wing coverts running along the carpal joint apparently always so tipped; the whole of the quills, the greater and median coverts, blackish brown; the secondaries very narrowly tipped with white. The legs, feet, and bill, black. The adult female is precisely similar. In a somewhat younger bird, the quills and coverts are a comparatively pale brown. In the immature birds of both sexes, the whole head, neck, upper and middle back are a pale, very slightly fulvous, earthy brown; the ear coverts slightly darker brown, the lower parts are albescent tinged with fulvous fawn; the wing coverts and axillaries dull white, the latter dark shafted; the rump and upper and lower tail coverts pale fulvous fawn, or isabelline. The central tail feathers with the whole visible portion, dull brown; the lateral tail feathers the same color as the upper tail coverts, but all with traces of a brown spot and dark shafted at the tips, and the external pair of all, with nearly the terminal, half brown. Wings and coverts, pale hair brown, but all the feathers conspicuously margined paler.

491.—Saxicola isabellina, Rüppell. *S. saltatrix*, Ménétries. *S. squalida*, Eversm. *S. ananthe*, L. apud, Jerdon.

This species, though common enough throughout Sindh, was not by any means so numerous there as it is everywhere in the North-Western Provinces, the Punjab, and Rajpootana.

491 bis.—Saxicola Kingi, Hume. *Ibis*, Jany. 1871, p. 29. *The Red-tailed Wheatear*.

I reproduce my original description, &c., of this species taken from the *Ibis*, with slight additions.

Dimensions.—Length, 6.2 to 6.5; expanse, 10 to 11.3; tail from vent, 2.2 to 2.4; wings when closed reach to within 0.7 to 1.5 of end of tail. Wing, 3.7 to 4.4; the third primary is the longest, the second, 0.25, and the first, 2.0 shorter than the third. The tail is perfectly square. Bill, length at front 0.55 to 0.6; tarsus, 1 to 1.1; foot, greatest length, 1.15 to 1.3; greatest width, 1 to 1.1; mid toe to root of claw, 0.55 to 0.64; its claw (straight), 0.2 to 0.24.

Description.—Legs and feet, black; bill, black; irides, dark brown.

Plumage.—A dark grey line from the gape to and under the eye; a broad slightly greyish white line from the nostrils over the eye, much more conspicuous in some specimens than in others; ear coverts, silky rufescent brown; forehead, greyish brown; crown, occiput, nape, back, and scapulars, nearly uniform grey-earthly brown, as a rule only very slightly tinged with rufescent towards the rump; but in some specimens, more strongly so; rump and upper tail coverts, bright rufous fawn; in some specimens pale rufous buff; tail feathers, bright, in some pale, ferruginous; with a sub-terminal blackish brown band extending over both webs, and a narrow tipping of rufous white, which jets in at the shafts for about the tenth of an inch; occasionally on the lateral feathers, the black bar is more or less imperfect. The dark band is from 1.1 to 1.4 broad on the central tail feathers, about 0.6 to 0.8 on the feathers next the centre, and 0.4 to 0.6 on the external ones. The tertiaries and most of the coverts are hair brown, broadly margined with pale rufescent; the winglet, primaries and secondaries, and primary greater coverts, are slightly darker hair brown, very narrowly tipped with white, and some of them, the secondaries especially, very narrowly margined with pale rufescent. The chin and upper throat white, with a faint creamy tinge. The sides of the neck behind and below the ear

coverts, grey, greyish white, and greyish brown, blending on the one side into the color of the throat, and on the other into that of the back of the neck. The breast and upper abdomen are a very pale rufescent brown, all the tips of the feathers being paler. The centre of the abdomen and vent, slightly rufescent white; flanks, rufescent fawn; lower tail coverts, a somewhat pale buff; wing lining and axillaries pure white.

This species which I first described from a specimen killed at Jodhpoor, and which I subsequently obtained in considerable numbers from the salt range, Murdan, and Peshawur, and also in the summer from the ranges bounding Cashmere on the south, is common throughout Sindh, and the Punjab west of the Jhelum. Comparatively rare where there is any cultivation, I found it alike on earthen cliffs of the Jhelum near Jung, and other similar localities of the Chenab and Indus, and again in precipitous places throughout the hills that divide Kelat from Sindh, and that run along parallel to the Mekran Coast. Occasionally, but rarely, I found it, as near Mooltan, in fallow fields. My original description was from a female; but both sexes are precisely alike, nor do I think that there is any constant difference in size between them, though individuals of both sexes vary somewhat in dimensions. It is absolutely terrene; I never once saw it perch upon any bush or tree; when at rest, it is difficult even with binoculars to distinguish it from *isabellina*, but the moment it flies, its bright rufous, black-tipped tail, betrays its identity.

This, is I think, without doubt the bird represented in Burne's drawing which Mr. Blyth identified with *Cercomela melanura*, Rüppell. When the wings are closed, and the rump and upper tail coverts hidden by them, and only the black tips of the central tail feathers shewn, the bird does bear a certain resemblance to Temminck's figure, *Pl. Col.*, p. 7, fig. 2, though not nearly so blue above, and differently colored below. I do not believe that if the true *melanura* was a regular inhabitant of Sindh, it could have altogether escaped our party, and I am half disposed to think that it should be removed from our Indian list.

492.—*Saxicola deserti*, Rüppell.

Mr. Gould has accepted no less than three species, all founded on this one. He admits *deserti* as one, and this I suppose is the autumn or spring plumage. He takes Blyth's *atroregularis* which is the mid winter plumage, and creates *montana* out of the breeding plumage. I have already in the Ibis, and in "Lahore to Yarkand," expressed my conviction of the invalidity of *montana*, I must now equally record my dissent to *atroregularis*, a species

which though it originated with Mr. Blyth, has been adopted and figured by Mr. Gould. Mr. Gould remarks in regard to *atroregularis* and *deserti*—"While I find them to be very similarly colored, I do not fail to observe that the specimens of *S. deserti* in my collection at least, have rather longer tarsi, somewhat shorter wings and smaller bills, than those of *atroregularis*; but the great difference exists in the coloring of the under surface of their shoulders, that part being nearly white in the former and jet black in the latter, and that this black coloring of the under shoulder is the best character by which the *Indian* bird may be distinguished from its African ally." Now this best character is absolutely worthless; in the breeding plumage, the under surface of the shoulder is black; in the winter plumage, it is almost entirely white, and with a large series before one, every possible proportion of black and white in the axillaries and wing lining may be pointed out. As regards the bills and tarsi, no such distinctions hold good between my African and Asiatic specimens, and I entertain no doubt whatsoever that *atroregularis* must be placed in future like *montana* as a synonym of *deserti*.

S. deserti was common to a degree throughout Sindh, as it is everywhere in the cold season throughout the North-Western Provinces, the Punjab, and Rajpootana. The bleaker and more inhospitable the barren wastes stretched away, the more at home, true to his name, seemed the desert wheatear. It was not however only in Sindh that this bird occurred, we equally met with it at Pusnee and other places along the Mekran Coast, and I have no doubt that, in suitable localities, its range extends unbroken from Cawnpore to Cairo.

497.—*Ruticilla rufiventris*, Vieill. *R. phoenicuroides*, Moore. *R. erythroprocta*, Gould.

I have in a separate paper which will appear in an early number, recorded my views as to the changes of plumage of our very variable Indian redstart. It will be sufficient here to mention that almost all the specimens I preserved were, with one exception, either in the autumn or *phoenicuroides* stage, or in the stage between that and the full winter plumage. I obtained one male on the Mekran Coast on the 15th February, in the garb of the adult female. I do not at all understand this; structurally it is in every respect identical with full plumaged males obtained in the same locality, and throughout Sindh and the Upper Punjab, and I can only imagine that the failure to assume the masculine garb must have been due to some accident or *lusus nature*; but it was an adult male, and its plumage is that of the adult female.

This species was common everywhere, at times even in the most desolate localities, throughout all the districts and provinces which we traversed.

514.—*Cyanecula cærulecula*, *Pal.*

The Asiatic blue-throat occurred but sparingly and only in the better cultivated portions of Sindh. Larkhana and Mehur were the only places where I noticed several pairs on the same day. All these birds are analogous to what I take to be the true *suecica*, having red throat-patches, the *leucocyanea* type, with the white satin throat-patch, is of very rare occurrence, and I have only succeeded as yet in procuring two in India. I think it very doubtful whether this variety is entitled to specific separation.

It will be seen, that having myself no European specimens for comparison, I have followed Mr. Gray in separating the Asiatic blue-throats from the European. The matter needs investigation, *à priori*, I should doubt the specific distinctness of the two.

515.—*Calamodyta brunnescens*, *Jerdon.*

This large reed bird, as indeed might have been expected, swarmed in the reedy clumps that fringe and dot the many inland waters of Sindh, and was not unfrequently noticed on the tamarisk bushes, where reeds were scarce. I have so often mentioned this species in my diary, that it is needless to say more of it here.

517.—*Calamodyta agricola*, *Jerdon.*

Of this species I saw only a few specimens, but I did not hunt after the bird, and it never, I think, shows itself so freely as do *brunnescens* and *dumetorum*.

518 *bis*.—*Lusciniola Melanopogon*, *Tem.*

The occurrence of this pretty reed warbler in India was first made known by my friend Mr. W. E. Brooks, who met with it abundantly in the Etawah district. There are dunds, or inland lakes, in Sindh which locked at, even from their margins, appear one waving field of herbage, so dense, close, and even is the growth of a species of rush throughout their whole extent. The fowlers and fishermen have cut through this rush many little narrow channels, just sufficiently wide to admit the passage of a small canoe, and along these alone is it possible to progress at all satisfactorily. The rush rises from two feet six inches to three feet six inches above the surface of the water.

These meadow-like broads are the special haunt of the present

species, as well as of the marbled duck. At best the moustached warbler is not a very easy bird to secure; rarely does he disport himself upon the tops of the rushes. As a rule he threads his way rapidly from stem to stem about half way up, only when the boat is actually on him, making a short, sudden flight, and then before he is far enough to fire, without blowing him to pieces, dropping invisible into the waving sea of rushes.

The following are dimensions, &c., taken from the fresh bird. The sexes not differing appreciably in size. Length, 5·7 to 5·8; expanse, 7·3 to 7·5; tail, from vent, 2 to 2·2; wing, 2·4 to 2·5; wings, when closed, reach to within 1·25 to 1·4 of end of tail; bill, at front, 0·42 to 0·47; tarsus, 0·82 to 0·87; hind toe and claw, 0·55; claw only, from root straight to point, 0·3; weight, 0·35 to 0·4 oz.

The irides are brown to pale brown; the feet, dark horny grey; in some, dusky brown; the legs, dusky brown; soles, pale yellowish; the bill very dark-brown, almost black, paler on lower mandible. A broad conspicuous white stripe from the nostrils over the eyes and ear coverts; a dark brown stripe from in front of, under, and through the eyes, enveloping the upper portion of the ear coverts, darker in the males than in the females; the chin, throat, and lower parts, including the lower tail coverts, white; faintly tinged rufescent on the breast, more strongly so on the flanks about the vent, and, in some specimens, the lower tail coverts also; the sides, both of the neck and of the body, tinged with greyish, or in some, olivaceous brown; the forehead, crown, occiput, and nape, very dark brown, the feathers tipped and margined with a paler yellowish olive brown; in some specimens, these tippings entirely obscure the bases, except on a narrow line immediately above the white eye streak; in others, these parts appear to be very dark brown regularly striated with the paler olive brown, while in some, the tippings are almost wanting. The back, scapulars, rump, and upper tail coverts, the same yellowish olive brown, becoming more rufescent on the lower back, rump, and upper tail coverts; the feathers of the centre of the back with more or less conspicuous dark central shaft streaks. In some birds the whole back seems regularly streaked with dark lines, in others only a few faint darker streaks are visible in the very centre of the back; in some again the lower back is much more decidedly rufous. The wings are hair brown; the primaries very narrowly margined, and tipped on the outer web, paler; the secondaries and tertiaries and most of the coverts more distinctly margined with a sort of rufescent olive; the wing lining and axillaries pure, or nearly pure white; tail feathers, somewhat pale hair

brown, obscurely margined with rufescent olive; the shafts, dull white below.

The plumage is rather variable, and in some specimens the flanks and tail coverts are much browner than I have above described. The upper surface, too, varies a good deal in its general appearance, as indeed I have attempted to explain above. All the quills are margined on their inner webs albescent.

518 *ter.*—**Cettia sericea**, Natt. *Cetti*, Marm. *altisonans*, Rüpp.

I ought I dare say to begin as Mr. Gould would, and remark, that "the occurrence of this species in Sindh must be very interesting to all who make a special study of the Sylviad group," but personally I (A. O. H.) consider the individuals of this species the most unmitigated little beasts that ever bothered an ornithologist.

I secured personally seven specimens, and each one of them represents from one to two hours' hard work, up to one's knees in mud and rush. Such inveterate and incorrigible little skulkers, birds so utterly incapable of appreciating the demands of science, it has never been my misfortune to encounter, and "I* can scarcely believe that the whole feathered kingdom can afford us any similar examples of avine depravity."

On several occasions when boating about in gloomy rush and tamarisk swamp, I caught glimpses for a second of a small dusky long-tailed bird fluttering about the stems of the centre of the tamarisk bushes; each time I mentally resolved, "next time I see that fellow, I'll shoot him." This went on for several days; but I never once *did* see him; a momentary glance in the centre of a thicket was all that was ever vouchsafed, and so I made up my mind that I *must* get a specimen, *coûte qui coûte*. At last having seen, or fancied I saw, one in a small island of rush, about 40 feet square, in which some dozen dense tamarisk bushes were growing, I set to work systematically, and made six men beat through it in the expectation that the bird would, at any rate when thus pressed, fly out into one of the many neighbouring similar little islets; no such result however followed; one of the men saw it flit by him and that was all. This process was repeated five or six times, but with no better success; then I made up my mind to go and beat through rushes and bushes myself, which as the water was cold, and with the mud fully three feet deep, was unpleasant. I drew the charges of my gun, put in only about $\frac{1}{2}$ drachm of powder and $\frac{1}{4}$ oz. of dust shot in

* ? Gould's Birds of Asia. I can't find the passage, but there is no mistaking the dignity of the style.

each barrel, and went in for mud-larking operations in earnest. Three times I beat the clump backwards and forwards without catching a glimpse of the wretched little creature ; getting my hands and face scratched and cut, with the reeds and tamarisk branches, besides getting up to my waist in a hole at the root of one of the bushes, yet as each time one of the party saw it, I felt bound to persevere ; the fourth time the bird suddenly appeared at the muzzle of my gun, darted, I believe, between my legs, where there couldn't have been much room, considering the depth of water, and disappeared. I duly let the gun off, but I had reason to suppose, in exactly the opposite direction to that in which the bird at the moment was ; then I altered my tactics and stood quite still in the middle of the clump, whilst I made the men beat from the other side. This was obviously the right plan, for the very first time I got a shot, at least seven feet off the muzzle of the gun, and blew the bird *entirely* to pieces, besides, unfortunately, peppering one of the boatmen so soundly, that though it was only dust shot, they positively refused to beat any more upon that system. This was by many degrees too bad ; I had no special grudge against the species to begin with ; but I then and there registered a vow that an ample series should give me my revenge ; accordingly for many hours of two days I devoted myself entirely to Cetti's warbler. Every little dark dense patch of rush, reed, and tamarisk, standing out in the water contained one or two of these atrocious little skulks, the thing was to *bag* them. I never but once succeeded in flushing any one of them, and then I missed him, at least so the boatmen said. I did not admit the fact at the time, and I don't see why I should now, but anyhow the *corpus delicti* was not produceable. I never got a shot more than three yards distance from the muzzle of my gun, and I absolutely blew to pieces more than half of the specimens I did succeed in shooting, and all I can say further is, that having established the occurrence of the species in India, any one else may go and shoot them who pleases, no one will ever catch *me* at it again.

The following are the dimensions taken from the fresh birds. The females being, as a rule, somewhat, though scarcely appreciably, smaller than the males. Length, 5·8 to 6·5 ; expanse, 7·5 to 8·4 ; tail, from vent, 2·4 to 3 ; wing, 2·5 to 2·8 ; wings, when closed, reach to within from 1·2 to 2 of end of tail ; bill at front, 0·4 to 0·5 ; tarsus, 0·8 to nearly 0·9 ; weight, 0·4 oz.

The plumage is soft and lax ; the tail feathers broad, and the tail much graduated ; the fourth and fifth quills are the longest, the fifth being slightly the longest, the third is about 0·08 ;

the second, 0·4 to 0·5; and the first, 1·1 to 1·3 shorter; the irides are brown; the legs and feet are pale brown, or fleshy brown, darker on toes and claws, the bill is dark horny-brown; but paler on lower mandible. A spot in front of the eyes dusky. A streak from the nostrils over the eye and a circle round the eye, fulvous white; the forehead, crown, and whole upper surface, a warm rufous or ferruginous brown, more rufous on the rump, and upper tail coverts; the quills and tail, hair brown, margined with rufescent olive; the ear coverts, sides of the neck, body, flanks, and vent feathers, a pale dull greyish or earthy brown; chin, throat, breast, and abdomen, white. Lower tail coverts slightly rufous brown (webs very lax and much disunited) narrowly tipped with white; axillaries and wing lining, slightly greyish white; the edge of the wing, just above the base of the primaries, is white; in some few specimens the eye-streak extends beyond the eye, above more than half of the ear coverts, but in most it ceases just behind the posterior angle of the eye.

Our birds somewhat exceed in size European specimens. Mr. Brooks sends me the measurements of two—wings, 2·43 and bill at front, 0·39. Before working the bird out, I had fancied that it might be *Bradypterus cinnamomeus*, Rüppell, but that I find is a considerably larger bird, and has a decidedly stouter bill, and I myself am not disposed to separate our Sindh race. It is certainly, as far as I can judge, though somewhat paler on the upper surface, and slightly larger, in other respects, absolutely identical with Cetti's warbler. If any one chooses to separate it, it must stand as *Cettia Cettioides*, nobis, unless it should prove to be Tristram's *orientalis* from Palestine, of which I have no accurate description at hand.

530.—*Orthotomus longicaudus*, Gmel.

I never met with this species myself in Sindh, but Captain Malden informed me that he had killed a specimen at Jacobabad in March, and since my return I have had a specimen sent me from the neighbourhood of Kurrachee.

544.—*Drymoipus longicaudatus*, Tick.

This species was very common indeed on the banks of the larger rivers, alike in the Punjab and in Sindh; but though it did occur inland, I saw it there much seldomer. I measured, as it happened, a great number of specimens in the flesh, and I therefore append the dimensions, which so far as the length of the tail is concerned, and consequently the entire length of the bird, vary materially. Length, 5·35 to 6·4; expanse, 6·1 to 6·8; tail, from vent, 2·7 to 3·5; wing, 1·85 to 2·15; wings,

when closed, reach to from within 2 to 2·5 of end of tail; bill at front, 0·35 to 0·41; tarsus, 0·9 to 1; weight, 0·3 to 0·35 oz.

549 ter.—*Blanfordius striatulus*. Hume. *Stray Feathers*, *vide infra*.

When characterizing this new genus and species, I gave all particulars available and have nothing now to add. The single specimen obtained was shot by Mr. Blandford in the neighbourhood of Kurrachee.

550.—*Burnesia gracilis*, Rüpp.

This was equally abundant with *Drymoipus longicaudatus* and in the same situations. It is a much commoner bird than is generally thought. I have it from various parts of the Doab, from the Punjab, and from several localities in Rajpootana, notably the neighbourhood of the Sambhur Lake, where Mr. Adam informs me that it is very common. Along the banks of the Jhelum, the Chenab, the Sutlej and the Indus, wherever there was any vegetation, but specially tamarisk bushes, you could scarcely fail to meet with 50 specimens in an hour's walk. Inland, in Sindh, it was much commoner than *D. longicaudatus*, but not nearly so common as along the banks of the great rivers. The following were the dimensions of several specimens measured in the flesh. Length, 5·2 to 5·5; expanse, 5·5 to 5·6; tail from vent, 2·6 to 3·2; wing, 1·6 to 1·8; wings, when closed, reach to within from 2 to 2·6 of end of tail; bill at front, 0·3.

551.—*Franklinia buchanani*, Blyth.

Appeared to me to be uncommon in Sindh; I only saw it once or twice in Upper Sindh, and the only specimen I have was shot by Mr. Blandford in the neighbourhood of Kurrachee.

554.—*Phyllopseuste tristis*, Blyth.

Common enough in the babul trees on the banks of all the larger rivers, but comparatively scarce inland. A rather fine male measured in the flesh. Length, 5; expanse, 7·3; tail from vent, 2; wing, 2·45; bill at front, 0·37; weight, 0·3 oz.

554 bis.—*Phyllopseuste neglectus*, Hume.

Ibis, 1870, p. 143.

When first characterising this species, I remarked—"There is a species of *Phylloscopus* very closely allied to, but yet clearly distinct from, either *P. tristis*, or *P. fuscatus*. This latter has the upper surface a moderately dark dingy olive-brown, and the wing lining and axillaries a sort of dingy buff or pale

rufous. *P. tristis* has the upper parts brown, paler than *P. fuscatus*, and with scarcely any olivaceous tinge, and the wing lining and axillaries, pale primrose yellow.

"The third, hitherto unnoticed species, which I call *P. neglectus*, has the upper surface a grey earthy brown (the color of *Phyllopus rama*), and the wing lining and axillaries white. In dimensions and structure (and in plumage with the above exceptions) *P. neglectus* agrees pretty closely with *P. tristis*.

"*P. neglectus* is common in the cold weather in the Punjab, and in the Doab, at least, as low down as Agra; but hitherto I have seen no specimens from Central India or the Lower Doab."

This tiny little leaf-hunter, the smallest of the whole group, is not uncommon along the banks of the Indus, and throughout Upper Sindh where ever thick clumps of the babul (*Acacia Arabica*) are met with. It is a very silent, self-concealing bird, creeping about amongst the feathery leaves of the acacia, and very difficult to secure. The bird is too often either so blown to pieces as to be past preservation, or else escapes altogether. Even when a tolerable specimen is obtained, it is difficult beyond measure, so delicate is the skin, to preserve it, and though I must have shot at more than twenty birds, I only brought home with me four specimens, and two of these far from satisfactory ones.

The fresh bird can never be mistaken, so tiny is it, for any of the other *Phylloscopi*; *tristis*, which at first sight, it most closely resembles, weighs, on the average, fully double as much; *tristis* varies from 0.3 to 0.4 oz., *neglectus*, from 0.15 to less than 0.25 oz. The following are dimensions, (the sexes not varying appreciably, though the female is a trifle the largest) of specimens measured in the flesh.

Length, 4 to 4.2; expanse, 6.25 to 6.4; tail, from vent, 1.4 to 1.6; wing, barely 2 to 2.15; bill, at front, 0.27 to 0.3; tarsus, 0.68 to 0.71. The fourth primary, the longest; the third and fifth, a hair's-breadth shorter; the second, 0.26 to 0.3; and the first 1 to 1.1 shorter than the fourth; the irides are brown; the legs and feet black; the bill black, paler, or horny greenish in some, at the base of the lower mandible. The lores are brownish white; a comparatively pure and very narrow white streak runs from the nostrils over the lores and eyes, but not beyond. The whole upper surface is dull earthy brown, with, in some, a faintly olivaceous rufescent tinge on the back, most conspicuous on the rump; the quills and tail are a moderately dark hair-brown, narrowly margined on the outer webs with pale olivaceous brown, much the same color as the upper parts; the secondaries are very narrowly

very dark brown like Phylloscopus

marginated at the tips with albescent. The whole lower surface is albescent, tinged with very pale fulvous fawn, or earthy brown, more strongly so in some specimens than in others; the sides and flanks more strongly so in all; indeed in some specimens the sides and flanks are pale earthy brown; the wing lining and axillaries are white, with at times the faintest possible fulvous or brownish tinge.

I obtained one specimen of *P. nitida*, Lath., floating in the Jhelum, some few miles above its junction with the Chenab, but this was the only specimen we saw, and *may* have floated down the whole way from Cashmere.

563.—*Reguloides occipitalis*.

We never procured this in Sindh, but Capt. Malden had shot it at Jacobabad.

581.—*Sylvia Jerdoni*, Blyth.

This species I often met with near the banks of the larger rivers, but inland I saw few specimens. I measured one rather fine female in the flesh; the dimensions were:

Length, 6·8; tail, from vent, 2·8; wing, 3·; wings, when closed, reached to within 1·3 of end of tail; bill at front, 0·55; tarsus, 1; the irides were very pale, whitish yellow; the bill, horny brown, pale greyish at base of lower mandible; legs and feet, dark greenish grey.

I follow for the present Mr. Gray in separating our Indian birds from the European *orphea*, Tem.; at the same time, I am far from convinced that they deserve specific separation.

582.—*Sylvia affinis*, Blyth.

White-throats were no less abundant in Sindh, than they are everywhere else about Continental India during the cold season. I preserved numerous specimens at Jhelum, Mittencote, Tugwanee, Jacobabad, Sukkur, Roree, Hyderabad, &c., and carefully ascertained, and recorded the sexes of all my specimens, yet I am still in the same state of uncertainty, with more than fifty specimens before me from all parts of India, as well as from Sindh, besides others from Yarkand, and true *curruca* from England, as to whether we have only one or three species in India, and whether if we have only one, this is the true lesser white-throat or not.

My difficulties are simply these.

There are three apparently very distinct races, differing chiefly in size, but also somewhat in shade of coloring. I have failed hitherto to discover any other constant points of difference, and so far as I am concerned, therefore, I should be inclined to con-

sider all the three races as pertaining to one species. The great difficulty is that the ascertained males of the largest race, are fully double the weight of those of the smallest, have a wing fully one-fifth larger, and bills half as long again.

The three races may be thus characterized.

First, there is the smallest race, which for convenience sake I separate as *minula*. The length of this is about 5·3 measured in the flesh; the wing, from 2·3 to 2·4; the bill, about 0·3 from forehead to tip. This is the palest of all the three. I have sixteen specimens of this race, males and females, from Bhawulpore Yarkand, Jhansie, and Sindh. The males and females do not, differ perceptibly in size; but the grey of the head of the females is slightly paler than in the males.

The second race is the intermediate one, generally identified with the European *curruca* or *garrula*. This is about 5·75 inches in length, has a wing varying from 2·5 to 2·6, and a bill at front of nearly 0·4; in some specimens only about 0·35. Some specimens of this race are absolutely identical with English specimens, not only as to color, but as to shape and size of wings, legs, feet, and bill.

Then there is the third and largest race which corresponds well with *affinis*, Blyth; length fully 6; wing, from 2·65 to 2·75, and bill at front, 0·45. This latter species has the whole upper parts much darker as a rule, than *curruca* and *à fortiori* than *minula*, and the grey of the head seems to overshadow to a certain extent the whole of the mantle, rump, and upper tail coverts.

I have forgotten to mention that in both the two latter races the females are somewhat smaller and decidedly duller colored than the males.

Defined as above and arranged in three groups, the races seem distinct enough; but then when closely examined, grave reasons will be found for doubting whether any hard and fast line can be drawn between the three races. I can pick out half a dozen *affinis*, a dozen *curruca*, and a like number of *minula*; (both sexes in each case being represented by the selected specimens) which no one certainly would consider to belong to one and the same species; but then there will be some twenty odd specimens, which more or less bridge the intervening gaps, and there are some few in regard to which it is a mere toss-up to which of two divisions they should be assigned. Under these circumstances, according to my view of such cases, all these should be considered as belonging to one and the same species; but the differences between a typical male *minula*, and a similarly typical *affinis* are so striking, both in size and color, that I confess I

should expect few ornithologists to concur in this view; are we then to suppose that there are three species which interbreed, and which are all winter visitants to the same localities? I confess that I am myself unable to accept any such explanation.

583 bis.—*Sylvia delicatula*, Hartlaub.

This pretty little sylvia which I have occasionally met with in the Sirsa district, and have had sent me from Bhawulpore, is one of the very commonest birds in the more barren portions of Sindh.

As in the more desert portions of the Punjab, so throughout vast similar tracts in Sindh, barren, sandy, and gravelly plains extend for miles, the only vegetation on which is the Booeë (? *Erua bovi*) and the Lana (*anabasis multiflora*). These plains are the favorite haunts of the Houbara, and in amongst these bushes *Sylvia delicatula* abounds; occasionally it is seen sitting on their tops, but more generally it is found pecking amongst the fallen flowers at their roots. In and out of these bushes, it runs looking for all the world like a little short-tailed mouse, and when disturbed, it retreats precipitately into the centre of the nearest bush, from which it is by no means easy to flush it. At best it takes but a very short and feeble flight, and its only note that I ever heard was a tiny twittering unworthy the name of a song. I was unable to ascertain whether it was really a permanent resident; but I was assured that it was so, and that it bred in these very bushes which it uniformly frequents during the cold weather, early in the hot weather, and again at the close of the inundations. I do not pretend to vouch for these latter facts, "I tell the tale as it was told to me."

The following are the dimensions taken from freshly-killed specimens, and I may note that there was no appreciable difference in the sizes of the sexes. Length, 4·8 to 4·9; expanse, 7 to 7·2; tail, from vent, 1·8 to 2; wing, 2 to 2·2; wings, when closed, reach to within 1 to 1·2 of end of tail; bill at front, 0·3 to 0·33; tarsus, 0·8; irides, yellow to orange yellow; legs and feet, pale yellow; in some, very pale lemon yellow; claws, dusky; bill, pale yellow, dusky, or horny grey on culmen and at tip.

The lores are greyish white; from the nostrils to the upper margin of the eye, runs a very narrow yellowish streak, whiter and less grey than the lores; this line ceases to be visible in nine out of ten skins, but is sufficiently apparent in the freshly-killed bird. A circle of yellowish white feathers surrounds the eye; forehead, crown, occiput, nape, back, and scapulars, pale fawn-brown; rump and upper tail coverts, pale rufous; central tail feathers, pale rufous, with dark shafts; external lateral feathers, wholly white;

next pair white on the outer webs, and with a moderately broad white tip to both webs; the rest of the inner webs, dark hair-brown; the rest of the feathers dark hair brown, margined on the outer webs with pale rufous. The whole of the lower parts white, with, in the freshly-killed bird, a just perceptible rufescent tinge; wing lining and axillaries, pure white; wings, pale brown, narrowly margined and tipped with rufescent white; the tertiaries, pale dingy rufescent, with brown shafts.

583 quat.—*Melizophilus striatus*, Brooks.

Only a short distance below the summit of Duryalo, the highest hill in the range that divides Khelat from Sindh, my friend Dr. Day shot three specimens of a small warbler which I at once referred to the same genus as the Dartford warbler, and from its striated plumage christened *striatus*. This was on the 16th January. All three birds were obtained in stunted Acacia trees or bushes. I myself never saw the bird alive; but measured one specimen in the flesh.

In February, Capt. Cock observed and procured the same bird at Nowshera, half way between Attock and Peshawar. He sent them to Mr. Brooks, who without any knowledge of my having already procured this species, and quite independently solely from the same considerations of structural affinities and character of plumage, named and published it under the same name that I had selected for it.

Capt. Cock remarked that they were found in pairs among low stony hills, and are very restless active little birds, and proportionately difficult to shoot.

This species breeds, according to Capt. Cock, in April, laying a small white, reddish pink-speckled egg similar to that of *Franklinia Buchanani*, and not very unlike that of *Phyllopneuste rama*. The eggs measure about 0.62 by 0.45; in shape they are a moderately broad oval, somewhat compressed towards one end: the ground is a pure glossless white, and they are moderately densely (most densely so at the larger end, where there is a tendency to form a zone) sprinkled and speckled very finely with reddish pink, pinkish red, or in places in and about the zone purplish lilac. I reproduce Mr. Brooks's original description.

Description.—"Above, light brownish grey, streaked on the head as far as the shoulders, with dark-brown, narrow streaks; a pale rufous-brown broad supercilium; the cheeks, and ear coverts are also of this color, which extends down the sides of the neck and breast, becoming very pale, and diluted under the wings, and on the flanks. Wings, light brown; the edges of quills and coverts, greyish. Tail, a very much darker or

rather blackish brown; the outer feather on each side is rather lighter, and is tipped with white. The tail feathers are cross-rayed, particularly the outer ones.

Lower surface of body, except sides of neck, breast, and flanks, white, with narrow brown streaks from chin to upper breast. These streaks are well defined in one specimen, and faint in another. Lining of wing and ridge of the same, reddish white. Bill, dark brown, except basal half of lower mandible, which is dull brownish orange; legs and feet, yellowish brown; claws, brown. Length, 4.55 to 4.8 inch; wing, 1.93 to 1.95; tail, 2.14 to 2.33; tarsus, .77 to .82; bill, at front, .35; from gape, .46. The bill is excessively like that of *Melizophilus provincialis*, the wing also resembles that bird, except that the first primary is larger in proportion. Tail of similar form, but proportionately shorter; the outer feathers are .35 shorter than the central ones.

Notwithstanding the difference I have noted, the general resemblance is so strong to *melizophilus*, that I have placed it in that genus. The head is streaked, and so are the throat and breast, but I have a Dartford warbler with small white streaks on the throat. It would not be advisable, therefore, to create a new generic term, merely because, in mode of coloration, it differs somewhat from *melizophilus*."

I have only to add that in one of my specimens the streaks on the chin and throat are altogether wanting; that the central tail feathers are pretty conspicuously margined with greyish brown, and that both the lateral feathers on each side are tipped with white, in some specimens the external pair being pretty broadly so tipped. The following are dimensions of a male taken in the flesh. Length, 4.7; expanse, 6.2; tail, from vent, 2; wing, 1.9; wings, when closed, reach to within 1.6 of end of tail; bill at front, 0.35; tarsus, 0.8; weight, 0.3 of an oz.

I should note that in one specimen not only the sides and flanks, but the whole abdomen, vent, and lower tail coverts, are strongly tinged with pale rufous fawn.

591 bis.—*Motacilla dukhunensis*, *Sykes*.

I have already in a separate paper, *Stray Feathers*, page 26, discussed our Indian grey wag-tails. I need only here say that this present species was very abundant throughout Sindh, and that one of the specimens I obtained would certainly pass muster any where if killed in Europe, as *M. alba*.

592.—*Calobates boarula*, *Penn. sulphurea*, *Bechst.*

Very common in Sindh. Some ornithologists separate our Asiatic race as *melanope*, Pall. I have compared a large series

of European and Indian specimens, without being able to discover any valid, constant difference.

593.—*Budytes viridis*, Scop.

Comparatively common throughout the irrigated and irrigable portions of Sindh.

594.—*Budytes citreoloides*, Hodgson.

This was the commonest of all the wag-tails; one or two specimens killed in January even, had large patches of black mingled with the grey of the back. I have in a separate paper, which will appear in an early number, discussed these yellow wag-tails and have nothing now to add on the subject.

594 bis.—*Budytes citreola*, Pallas.

Less common than the preceding, but still plentiful enough in marshes, swamps, meadows, (and there are such, though not many, in Sindh) and irrigated fields.

597.—*Pipastes plumatus*, Müll. *Arboreus*, Bechst.

This pipit appeared to me to be almost wanting in Sindh. I may have overlooked it; but the only specimen that I seem to have noticed and procured, was in the better cultivated region of this bleak country; in fact in that portion which the desert dwellers of Sindh are pleased to call the garden of their province, namely Larkhana.

Of *Pipastes agilis*, Sykes., *P. maculatus*, Blyth, so abundant in most parts of India, I procured no single specimen, and cannot remember even to have noticed it. Probably I overlooked it, but at the same time since *spinoletta* is common in Sindh, it may be that *agilis* is there represented by it, and really does not occur except, perhaps, as a straggler.

602.—*Agrodroma campestris*, Bechst.

This species was far less common in Sindh, than it is throughout the North-West Provinces and the Punjab. In the bare portions of the country which in Upper Sindh extend from 15 to 40 miles from the foot of the hills, and throughout the bare hilly region south of the Sehwan Hills on the right bank of the Indus, I altogether missed it; but in the more cultivated lands about Shikarpore, Larkhana, and Mehur, and to the east of the Indus, in Roree, Hyderabad, and Tatta, we met with it, though not in great numbers, and I procured a single specimen close to Kurrachee.

I have never been able to understand the changes of plumage in this species. Some birds have the plumage below absolutely

spotless ; there is no brown stripe on the sides of the neck nor does the breast exhibit the faintest trace of a spot ; others again show a well-marked stripe on the sides of the neck, and have the whole of the breast pretty conspicuously spotted. Degland tells us that in the male, in spring, the breast is with or without spots, and that the brown neck stripe is present. He makes out also that in the summer, the marking on the lower parts almost entirely disappear, and that in autumn, both neck stripe, and spots become again very conspicuous. I do not believe a word of this. I have now before me three males killed in the last week of December, two exhibit well-marked spots, one is spotless. I have four specimens killed in the latter half of October, one is devoid of markings on the lower surface, one very faintly marked, two tolerably well marked ; I have four specimens killed in the middle of March, of which two are spotless, and two have the markings of the lower surface conspicuous. It appears to me that the difference in markings depends *either* upon the individual, *or* upon age, and certainly *not* upon season.

Then Degland tells us that the female is characterized by a sort of pectoral band formed by a great number of longitudinal spots. Unfortunately, as far as my specimens go, the females as a whole are not one whit more spotted than, and are just as often spotless as, the males.

604.—Agrodroma Jerdoni, *Finsch*. *A. griseo rufescens*, nobis. *A. Sordida*, apud *Blyth et Jerdon*; *nec Rüppell*.

This species is decidedly uncommon in Sindh. It may occur there more plentifully, perhaps, in the autumn ; but during December, January, and February, when I was in Sindh, I only saw it twice, once near Hyderabad, and once near Kurrachee.

The males in this species are very considerably larger than the females. Large males are met with, measuring in length up to 8·4, with a wing nearly 4 ; expanse, 13 ; a bill 0·7 at front, and weighing as nearly as possible, 1·25 oz. An average male is about 8·2 in length ; expanse, 12·5 ; wings, 3·8 ; bill at front, fully 0·6, and weight about 1·15 oz. In the fullest sized females, the length is somewhat less than 8 ; expanse, about 12·25 ; wing, barely 3·7 ; bill at front, 0·58 ; and weight barely 1·1 oz.

The very nearly allied southern species *A. similis*, Jerdon, which I have seen only from the Neilgherries, Pulneys, and Anamallies, has the whole upper surface conspicuously darker. It has a bill fully as large, and, I think as a rule, somewhat

stouter, but the bird itself is somewhat smaller; the largest male I have seen, measured (in the flesh,) length, 8; expanse, 12; wing, 3·7; bill at front, 0·7 nearly, and weighed one oz. Both these species have comparatively short hard claws, say averaging (measured) straight from root to point, about 0·4. The claws vary of course to a certain extent according to individuals, but I think that, as a whole, the claw in *similis* is decidedly deeper, and more curved than in *Jerdoni*.

605 bis.—*Anthus spinoletta*, Lin. *A. aquaticus*, Bechst. *A. montanus*, Koch. *A. testacea*, Pallas.

This species, or at any rate our Indian representative thereof, which Mr. Verreaux considered absolutely identical with the European one, (an opinion from which I have seen no grounds for differing) is not at all uncommon in the Western Punjab, and in Northern Sindh where it is often met with in the neighbourhood of canals and streams. I obtained it on the banks of the Indus, at Mittencote, near Jacobabad, Shikarpore, and Mehur; but I did not notice it south of Sehwan. In the cold weather plumage it is not very unlike *Anthus arboreus*; but may be distinguished at once by its longer, slenderer, and more pointed bill; by its dark brown legs and feet; by its much more elongated and more compressed hind claw, and by the narrowness of the breast spots. In summer plumage, in which we obtain it in March, the comparatively uniform grey brown tint of the upper surface, and the almost entirely unspotted pale rufous tint of the lower surface, a tint tending towards vinaceous, are sufficient to distinguish it. Besides, the localities already mentioned, I have it from Mooltan, Lahore, Goorgaon, Ferozepore, Etawah, and the interior of the Simla Hills near Koteghur.

This species is not included in Dr. Jerdon's birds of India; I first brought its occurrence to notice, some years ago, in the *Ibis*; but I do not think that any description of the Indian bird has yet appeared. I give dimensions from several specimens taken in the flesh, noting that the females are somewhat smaller than the males. Male, length, 6·75 to 7·25; expanse, 11 to 11·25; wing, 3·46 to 3·6; bill at front, 0·45 to 0·53; hind toe and claw, 0·7 to nearly 0·8; weight, nearly 1 oz. Female, length, 6·37 to 6·62; wing, 3·15 to 3·3; expanse, 9·5 to 10·5; bill at front, 0·45 to 0·5; hind toe and claw, 0·7 to 0·75; weight, 0·63 to 0·8 oz.

In all the specimens the legs and feet are at least *dark* brown, in some birds they are almost black; the soles are yellowish; the claws, black; the bill is dark horny brown, yellowish at base of lower mandible; bill, legs, and feet are all darker, I

think, in the summer plumage; the irides are dark brown.

In the winter plumage the upper surface is a sort of olive brown, with more or less of a faintly rufous tinge; the rump unstriated, the head and back with dark hair brown centres to the feathers; there is a well marked, dull white, stripe from the nostrils over the eyes; the coverts and the quills are mostly hair brown, the former broadly margined with brownish or olivaceous white, purer just at the tips of the coverts, and the latter narrowly margined, the first few primaries with greyish white, the rest with a sort of greenish or olivaceous white; the tippings of the coverts form two tolerably well marked wing bars; the tertiaries which are somewhat paler than the rest of the quills, are broadly margined with brownish white. The central tail feathers, which are the shortest, are a comparatively pale brown, margined all round with brownish white; the next pair on either side are very dark brown, very narrowly margined with pale olivaceous, and the fourth with a tiny whitish spot at the extreme tip; the exterior tail feather of all has the whole outer web white, slightly brownish towards the tip, the whole inner web white for nearly half an inch from the tip, beyond which for another three quarters of an inch, the white occupies (next the shaft) a gradually diminishing portion of the inner web, the rest of the feather being brown. The lower surface is a dull white, in many specimens with a faint vinaceous tinge in parts, with a row of small brown spots down the sides of the neck, with similar spots on the breast and longer striæ, along the sides and flanks.

In the summer plumage the whole upper surface becomes greatly overlaid with an earthy or greyish brown shade; the striations of the back and head almost disappear, though the edges of the feather are still somewhat paler than the centres, and the whole lower parts become a nearly uniform pale vinaceous color without, in what I take to be the perfect plumage, a single spot or streak; in some specimens, which however I believe to be somewhat less advanced, a few spots still remain on the breast, and one or two streaks on the flanks.

In all stages of plumage, the axillaries are white and the greater portion of the wing lining and the lower surface of the quills pale satin grey.

657.—*Corvus Lawrencei*, *Hume*.

The Indian, raven which I have provisionally separated (Lahore to Yarkand, p.) under the above name, is a cold weather visitant to Sindh, more especially to Upper Sindh. They abound at Jacobabad, and the very remarkable fact has already been

noticed in my diary that both when they first arrive, in November, and for sometime afterwards, and again just before they leave on the approach of the hot weather, great numbers of them die; half a dozen may sometimes be picked up in a single compound. In Lower Sindh they are less common, but we saw them not only at Hyderabad, but also here and there along the Mekran Coast to Gwader.

663.—*Corvus impudicus*, Hodgson.

Is as *impudicus* in Sindh as elsewhere, though perhaps not quite so numerous. The only thing I have to notice is that the neck, upper back, and breast of many of the Sindh specimens run paler and more albescent than I have ever seen them elsewhere in India. The difference in color strikes one even without comparing specimens, and this led me to shoot and preserve several. As to the specific name I only follow Mr. Gray, *splendens* of Temminck, from Java and Sumatra, he separates as distinct, while *splendens* of Vieillot, which I always fancied had priority of Temminck's name, he degrades into a synonyme of *impudicus*.

? 669 bis.—*Garrulus Melanocephalus*, Gené.

I failed to secure specimens, but I satisfied myself that a species of jay, presumably from the description given me, *melanocephalus*, does occur, not uncommonly, in the Hills dividing Sindh and Khelat.

674.—*Dendrocitta rufa*, Scop.

This bird is common almost everywhere in Sindh. The Sindh race is large and comparatively dark like the generality of upper indian birds, but is almost as small-billed as the southern Indian birds.

681.—*Sturnus vulgaris*,* L.

The common starling was everywhere met with in large flocks except in the most barren portions of the country.

In the debateable ground between desert and cultivation, I occasionally met with isolated pairs of starlings which struck me as smaller and darker than the common bird. Unlike the common birds, I saw them only in pairs, and found them very wary, and partly, owing to this latter cause, and partly through not sufficiently recognizing their distinctness, I only succeeded in procuring and preserving a single pair. On comparing these latter with numerous specimens of the common

* I cannot follow Mr. Gray in separating the Indian race as *S. splendens* Tem. I have compared large series of Indian and European birds, and see no valid ground for specific separation.

starling, and also of *Sturnus nitens*, nobis, (Lahore to Yarkand page fig.) I find myself unable to identify them with either, though they are undoubtedly nearest to the latter. The general character of their plumage is like that of the ordinary starling, but in the first place whereas in the common starling the reflections of the head are purple and of the back green, in these birds the head is green and the back purple; secondly, whereas in the common starling the wing varies from 5 to 5.35, and the tarsus from 1.1 to 1.2; in these birds the wing is only 4.3; and the tarsus barely 1; the bills are about the same length as the common starling, measuring exactly an inch in front; but they are more pointed, have a more decided culmen ridge and are less broad at the base. One of these is apparently quite an adult, with only a few white spots on the upper back, throat, sides of the neck, upper breast, and vent, the other, the female, is a young bird, profusely and thickly spotted with white as in the common starling.

I thought these birds might be specimens of *nitens* in a stage of plumage in which I had not yet seen this species; but on comparing the birds, I find that while the wings are decidedly shorter, the bills are decidedly longer, and while in *nitens* the head, chin, and throat are purple, in these small Sindh birds they are green; moreover, the primaries want the conspicuous white margins so characteristic of the adult *nitens*. I have a strong objection to separating mere local races on the strength of trifling variations, very generally found on investigation to be either bridged over by intermediate forms or more or less inconstant, but in the present case the difference in size, and in the distribution of colors is so marked, that should these prove constant, it will, I believe, be necessary to separate this form which may then stand as *S. minor*, nobis; but until I obtain more specimens with which I hope some of my contributors in Sindh will soon furnish me, I suspend my opinion as to the necessity of any such separation.

684.—*Acridotheres tristis*, L.

Pretty common in some of the better cultivated tracts, but nowhere nearly so much so as in the rest of India. In the wilder and more desert districts, rare or absolutely wanting.

685.—*Acridotheres ginginianus*, Lath.

Not at all common in Sindh as a whole, but met with constantly on the banks of the Indus and often seen in small detached colonies in the better cultivated portions of the province.

690.—*Pastor roseus*, L.

Rarely seen by any of our party while in Sindh, but Captain Malden informed me that it arrived in Upper Sindh, in April, in large flocks. Where this bird breeds is a mystery still. Millions throng the plains of India during nearly nine months of the year; they do not leave us before the end of April and many are back again with us in August. In Europe they breed, amongst other places, in the banks of the Danube. I used to fancy that they must breed in the banks of the Indus, but I have traced this river almost from Attock to the sea, and everywhere I have heard of them only as birds of passage going further west. As they appear in Sindh, so higher up at Dera Ghazee Khan, they appear early in the hot weather and again, after a very short period, disappear to return in August or September, for a few days, and pass on eastwards. I hope ornithologists on our western frontier will note their movements. They do not go to Cashmere, or into *our* hills to breed. Mountaneer in all his life only met with one in the interior, which he sent me as a rare and strange bird.

Mr. Gray separates our Indian race as *peguanus*, Lesson, with *suratensis*, and *selenium*, Gmel., as synonyms, but seeing that the head quarters of the species appear to be the basins of the Black and Caspian Seas, and the circumjacent provinces, I cannot myself believe in the distinctness of the birds that visit India and Central and Western Europe.

695.—*Ploceus manyar*, Horsf.

I shall take an early opportunity of reviewing the Indian members of this genus. Certainly more species occur within our limits than is generally supposed, and I am inclined to believe that the birds which I notice under the above name from Sindh, will have to be separated as a distinct species. However enough for the day is the evil thereof, let them stand for the present as *manyar*. Everywhere in the giant flowering grass so common in the neighbourhood of Shikarpore and other similar localities in Upper Sindh, this weaver bird is seen in large parties feeding, as I ascertained by dissection, both on the grass seeds, *and* on small insects that haunt the grass. Half a dozen may be seen perched closely side by side upon the topmost sprays of the longest grass stems which, curving slightly beneath their weight, sway backwards and forwards at every passing breath, much apparently to their satisfaction. No sooner, however, are half a dozen comfortably placed, than a dozen others insist on sharing the perch; great is the commotion that ensues; down bends the grass stem, and off they all fly to resume the same game on

some other stem, and so they will go on continuously for half an hour at a time. It is a curious thing that with one exception every specimen of this species which I procured belonged to the sterner sex. What on earth had become of the ladies? I shot a good number of the species, but only obtained one that may have been a female, and I was rather doubtful of the identification of the sex, even in this one bird, as it had been badly shot.

696.—*Ploceus bengalensis*, L.

Found in the same localities as, and in company with, the last named species. Of this species too I did not succeed in meeting with a single female. It is absolutely a mystery to me where the females can have got to, the birds were certainly not breeding, and had the females been in that part of the country some of us must surely have secured *some* specimens, as not less than forty were shot from first to last.

703.—*Munia malabarica*, L.

Very common alike in the western Punjab and throughout Sindh from Kussmore to Kurrachee.

704.—*Estrilda amandava*, L.

I only met with this species on the banks of the Indus at Kussmore, and again in similar thickets of giant grass between Shikarpore and Sukkur; but I was told that at some seasons of the year it was met with pretty well all over Sindh wherever there was long grass.

706.—*Passer indicus*, Jard. and Selb.

Of course very abundant. Throughout Sindh, as in past years throughout Rajpootana and the western Punjab, I searched in vain for Mr. Blyth's *Passer pyrrhonotus*, and the hundreds of common sparrows that Mr. Blyth is answerable for having led me to execute, ought to form a heavy load upon his conscience.

In regard to this supposed species I am fast verging on Betsy Prigg's conviction in regard to Mrs. Harris, and if such a bird exists, it would be only decent for it, for the sake of its scientific historian, to put in an appearance with as little delay as possible.

707.—*Passer salicicola*, Vieill.

The willow sparrow, which during the cold season invades nearly the whole Punjab in such vast flocks that a single shot would often enable one to secure materials for a dozen pies, is apparently only a straggler in Sindh. I never saw a single large flock of it, and the only specimens I obtained were single birds killed by accident out of flocks of common sparrows.

732 bis.—Bucanetes githagineus, Licht.

This delicately tinted species which is another that Sindh has unexpectedly added to our avifauna, was met with only at comparatively short distances from the lower slopes of the hills which divide Sindh from Khelat. They were seen exclusively in small patches of cultivation which here and there occur, oases in the barren waste which fringes the skirts of the mountains. They were always in small flocks feeding in a kind of mustard; very tame but difficult to shoot, because, invariably, when in the least disturbed, running on the ground, with which their upper surfaces are almost absolutely unicolorous, in amongst the mustard plants. Whether it is that my birds were all shot about the end of January, and that the breeding plumage is brighter, or that the figures are over-colored, I cannot say but not one of the fifty odd birds that I obtained could compare in brightness with the figure in the pl. col. 400 (in which *proh pudor!* the bills are colored vermillion red) or even with Dr. Bree's figure; with Bonaparte's figure (Mon. des Loxiens, t. 33) however they agree well.

It is very likely that before I first obtained specimens I overlooked them; seen feeding in the fields at a little distance, they looked for all the world like a party of hen sparrows, it was only the color of the bills that one day attracted my attention and led to my shooting one; once in the hand the faintly rosy, blue grey tinge of the head and breast and the decided rose color of the rest of the lower parts at once showed me what the bird was, and I then set to work vigorously to procure specimens, and in two days, I think, we shot thirty, so that they were plentiful enough in that immediate neighbourhood, which was Gool Mahomed in the Mehur sub-division. I noticed them once or twice afterwards and shot a few more, one or two I remember near the mouth of the Nurree Nai. I notice that Mr. Gray besides *githagineus*, Licht., and *sinaiticus*, Licht., gives a third species *crassirostris*, Blyth, from Afghanistan. I cannot ascertain where this species of Blyth's is described, and as I have no European or Arabian specimens to compare, it may be that, if really distinct, our bird should stand as *crassirostris*, but it agrees perfectly with Bonaparte's figure and description of *githagineus*. I subjoin measurements, &c., taken in the flesh.

Dimensions.—Males.—Length, 5·7 to 6; expanse, 10 to 10·7; tail from vent, 2·1 to 3; wing, 3·3 to 3·6; wings, when closed, reach to within 0·7 of end of tail.

Females.—Length, 5·7 to 5·8; expanse, 10·5 to 11·1; tail from vent, 1·8 to 2; wings, 3·2 to 3·4; wings, when closed, reach to within 0·6 to 0·8 of end of tail.

Both sexes. Bill at front, 0·35 to 0·41 ; tarsus, 0·67 to 0·77.

The irides are brown, the legs and feet fleshy brown ; claws, dusky ; soles whitish. The bill, orange yellow, in some probably less mature, pale yellow, brownish on upper mandible.

In the male the head is pale, bluish grey, the feathers tipped browner ; the chin, throat, breast, cheeks, and ear coverts, a sort of blue grey, the feathers faintly tinged, most conspicuously so round the base of the lower mandible, with pale rosy ; the abdomen, vent, and lower tail coverts, very pale rosy white, the longest of the latter with dark shafts ; the back and scapulars dull earthy brown, with when fresh a faint rosy tinge, which disappears in the dried skin, and somewhat greyer towards the nape ; rump, pale brown, more decidedly tinged with rosy ; the visible portion of upper tail coverts rosy white, more strongly tinged with rosy at the margins, the centres and bases of the longest being pale brown ; these however are not seen till the feathers are lifted. The tail feathers dark brown, conspicuously, though narrowly, margined with rosy white, which is most rosy towards the bases of the lateral feathers. The wings hair-brown, conspicuously margined and tipped, the coverts, secondaries, and tertiaries most broadly so, with pale rose color, or rosy white. There is a very narrow, inconspicuous, pale rosy frontal band. The wing lining and axillaries are pure white ; the winglet alone is dark-brown, unmargined with rosy.

The female has the whole upper surface and the side of the head and body a dull pale earthy brown, with only a faint rosy tinge upon the rump and upper tail coverts ; the lower parts a still paler earthy brown, with the faintest possible roseate tinge on the breast and becoming albescent on the vent and lower tail coverts and tibial plumes. The wings and tail are as in the male ; but the margins are narrower and less conspicuous, and are pale brownish instead of rosy white.

This species if (as I think there is little doubt) I have correctly identified it, has been observed in the Islands of the Mediterranean and the countries bordering thereon, France, Italy, Algeria, Syria, Arabia Petræa, and again, in the Canary Islands on the West, and Nubia on the East Coast of Africa.

759.—*Ammomanes lusitania*, Gmel.

This, in and about the hilly portions of Sindh, is *the lark par excellence* ; in the barest and most desolate hills, absolutely devoid of the slightest trace of vegetation (all about Duryalo they had had no rain for more than two years when I was there) this bird was abundant. From the very northernmost to the extreme southern point of Sindh, it was equally plentiful in

suitable localities, and all the way up the Mekran Coast I met with it whenever and wherever we landed. It is a perfectly fearless and familiar bird, and when shot at generally drops, if not wounded, at a few yards distance and seeks safety by squatting, when it is impossible even at a couple of yards distance to make out its whereabouts, so perfectly does its sober garb harmonize with the barren localities it affects. Further north, it is equally common in the salt range, in the hills that encircle the Peshawur valley, and Hazara.

760.—*Pyrrhulauda grisea*, Scop.

This little lark was common enough throughout Sindh. We generally met with it scratching about in the dust of the roads with which the color of its upper surface harmonizes admirably. A rather fine male measured in the flesh was, length, 5; expanse, 9·7; wing, 3; tail from vent, 1·95; wings, when closed, reached to within 0·61 of end of tail; bill at front, 0·35; weight, 0·5 oz.

760 *bis*.—*Pyrrhulauda affinis*, Blyth.

I did not myself meet with this species in Sindh, but Mr. Blanford sent me a single male which he shot near Kurrachee. In this the wing measures 3·16; and the bill at front, 0·42.

This bird which I have now received from both Sindh and Muttra is very close indeed to *grisea*. Females I have not yet procured; the males differ from those of *grisea*, first in having a considerably larger bill, and a slightly larger wing; and secondly, in having the whole crown and occiput unicolorous with the eye streak, lores, chin, throat, &c., leaving only a short broad white band on the forehead. The upper surface of the body is also slightly more rufous and less grey than in *grisea*. Mr. Blyth describes the species thus: "Crown of the male black with broad white forehead, and small blackish spot on the nape, less developed than in the Nubian Bird;" but neither of my specimens shew the slightest indication of any dark spot on the nape, to which the chocolate black of the crown very nearly descends *en masse*. The females would probably be distinguished by the larger size of the bill.

Mr. Blanford suggests that this species "should be compared with *P. albifrons* Sund;" but I fancy he means rather *frontalis* of Licht, from Nubia, and not *frontalis*, Bonap, which latter Mr. Gray identifies with both *albifrons*, Sund, and *nigriceps*, Gould, a Cape Verde Island and Canary species, with which our bird could scarcely be identical, though it might be with the Nubian.

761.—*Calandrella brachydactyla*, Leisl.

Common everywhere in Sindh. Seen also once or twice on the Mekran Coast.

762 *ter.*—*Alaudula Adamsi*, Hume. *Ibis*, 1871. p. 405.

This little sandlark is extraordinarily abundant along the whole course of the greater Punjab rivers almost from the foot of the Himalayas to Kurrachee, just as *Alaudula raytal* equally affects, though not in anything like such numbers, the Ganges and most of its tributaries.

The two species resemble each other pretty closely in plumage, appearance, and habits ; but they are distinguished at once by the shape and size of the bill which in *raytal* is more lengthened and slender than those of the true larks, measuring at front 0·5 (not 0·38 as Jerdon wrongly gives it) while that of *Adamsi* is that of a true lark never measuring in front more than 0·38. The bill of the latter, besides being shorter, is much stouter and has the culmen more curved, moreover it is differently colored, being grey or bluish horny, with a brown tinge on the culmen instead of yellowish horny as in *raytal*. I have seen some hundreds of both species, and never saw a single bird in any way intermediate, and I am compelled therefore to consider the two species distinct.

The following are dimensions recorded in the flesh :

Male, length, 5·9 to 6 ; expanse, 10·4 to 11 ; tail from vent, 2·1 to 2·2 ; wing, 3·3 to 3·5 ; bill at front, 0·35 to 0·38 ; tarsus, 0·75 to 0·8 ; wings, when closed, reach to within 0·7 to 0·8 of end of tail ; weight, 0·75 oz.

Female, length, 5·6 to 5·7 ; expanse, 10 to 10·5 ; tail from vent, 2 ; wing, 3·05 to 3·2 ; bill at front, 0·32 to 0·38 ; tarsus, 0·75 to 0·78 ; wings, when closed, reach to within 0·6 to 0·7 of end of tail ; weight, 0·6 to 0·7 oz.

The irides are pale brown ; the bill, pale greyish or slaty grey, brownish on culmen and at tip ; slightly yellowish white at base of lower mandible ; legs and feet, fleshy brown, or in some brownish yellow, dusky on joints.

In the winter the whole upper surface is a very pale grey or whitey brown, all the feathers narrowly centred with grey brown, so as to produce a striated appearance. There is, in many specimens, a more or less perceptible, but still very faint rufous tinge on the back. The wings are pale brown, the outer webs of the first primaries nearly entirely cream color, the other primaries narrowly tipped and margined white ; secondaries more broadly, tertiaries and coverts still more broadly, margined with fulvous

or slightly greyish white. The central tail feathers brown, somewhat conspicuously margined with brownish or fulvous white. The exterior tail feather on either side wholly white, except a dark brown stripe down the inner margin of the inner web. The next feather with the whole exterior web, pure white; interior web, dark brown; other tail feathers dark brown, very narrowly margined with dull white. The lores and a stripe over and under the eye, white or rufescent white; a very narrow grey line through the centre of the lores only noticeable in very good specimens or in the fresh bird; ear coverts mingled grey brown, and fulvous white, and usually exhibiting a somewhat darker spot just behind and below the posterior angle of the eye; the whole lower parts white, with, in some, a very faint rufescent tinge on breast, sides, and flanks, and with numerous narrow or linear darkish brown spots on the breast, very strongly marked and conspicuous in some specimens, reduced almost to speckles in other birds. The flanks and sides are faintly tinged with brown, or in some, pale rufescent. So far the plumage corresponds very closely to that of *raytal*; but the difference in the bills is so very conspicuous, that it can only be compared to that between those of *Melanocorypha maxima* and *M. tatarica*, of which they are respectively minatures.

One stage of the plumage of *A. Adamsi* deserves special mention, because I have observed nothing analogous in *A. raytal*. Only one single specimen in my museum, which was sent me from Murdan, and which I owe to Captain Unwin, exhibits this stage. The date on which it was procured has, unfortunately, not been noted, but I conclude it to be the nuptial garb.

In this stage each primary has a broad subterminal somewhat silvery, or slightly greyish white band, which, except in the first two or three, extends over both webs; the outer webs of the three tail feathers, next the central ones, become almost wholly of this color, and the inner webs are greatly blanched, or, more properly, appear to be overlaid with the same greyish white. Is this an accidental variety? There is nothing in the single specimen before me to decide the question.

769.—*Galerida cristata*, L.

The crested lark, as might be expected, is excessively abundant throughout Sindh, as it is indeed throughout Rajpootana, the Punjab, Oudh, and the North-Western Provinces. As usual the plumage is excessively variable, but most of the Sindh birds belong to one of two types, the grey brown and the desert or isabelline. I at one time believed that these were divisible specifically, but the examination of large series convinces me that no

such separation is either desirable or possible. Mr. Gray gives a number of species *chendoola*, Franklin ; *Boysii*, Blyth ; *abyssinica*, Bonap ; *isabellina*, Bonap ; *macrorhyncha*, Tristram ; *rutila*, Müller ; *brachyura*, Tristram. I confess that I should greatly like to see the type specimens of all these supposed species. Seeing as I do how extraordinarily this bird varies in India, I am strangely suspicious of all these supposed Nubian, Abyssinian, Egyptian, Syrian, and Arabian *Galeridas*, while as to the two supposed Indian ones, I know from actual comparison of series such as have never probably previously been got together, that they are nothing but *G. cristata* of Europe.

As a matter of fact this species is very variable alike in colour and size both according to sex and individuals. The wing varies from 3·5 in a small female to 4·32 in a very large male, and the bill at front, in like manner, varies from 0·54 to 0·76.

In the *Ibis* for 1867, p. 48, Mr. Blyth remarks, "*Galerita Boysi*, nobis, proves to be a good species. Examples from Lahore have the wing 3·5, and the rest in proportion ; otherwise resembling *G. cristata*."

I am, however, compelled to suppress this supposed species as well as *chendoola*, Frank. ; the examination of a large series proves that it is impossible to draw a line anywhere between the largest and the smallest examples. A perfect series of the wings occurs, and as for the difference in tone of plumage, big and little examples are alike met with amongst the brown, rufous, sandy or desert color, and grey types. I have measured carefully some fifty specimens and arranged them before me according to the size of the wing, and the following will shew the localities whence I received the birds, with each size of wing.

- 3·5 Etawah, Sirsa, North-West Punjab, Kurrachee.
- 3·6 Etawah, Saharunpore.
- 3·65 Mittenkote banks of Indus North Sindh.
- 3·7 Sirsa, Etawah, Raipore, Sirsa.
- 3·78 Etawah, Sirsa.
- 3·8 Sirsa, Etawah, Peshawur.
- 3·85 Sirsa.
- 3·9 Etawah, Jerripanee Mussoorie, Loodiana, Etawah, Sirsa, Murdan, Banks of Chenab near junction of Indus, ditto.
- 3·92 Kurrachee.
- 3·95 Saharunpore, Sirsa, Mittenkote.
- 3·97 Sukkur Sindh.
- 4·0 Sirsa, Sirsa, Etawah, Murdan, Sirsa, Sehwan Sindh.
- 4·05 Sirsa.
- 4·08 Gwader the Mekran Coast.
- 4·1 Sirsa, Sukkur, Chenab near junction of Indus.

4.15 Hussun ki gurhi North Sindh.

4.2 Hussun ki gurhi North Sindh.

4.25 Hussun ki gurhi North Sindh.

4.3 Sirsa.

4.32 Sirsa, Jacobabad.

In this large series it is impossible to draw a line anywhere. As a rule all the birds up to 3.9 are females, and those of 3.9 and upwards, are males; but one female has a wing of 3.95, and there is a male with a wing of only 3.6; but this is quite a young bird. Besides the variation in the bill and wings, that in the hind claw is excessively great. Picking out the two extremes, I find that this varies from 0.28 to 0.6, and though the claws are to a certain extent proportional to the size of the bird, the longest claw of all pertains to a female with a wing only 3.8. Again, the variation in the spottings on the breast is very remarkable; in some these are large, well defined, blackish brown, in others they are mere blurred streaks, of a somewhat pale brown; in some the spots are very numerous, in others there are not more than half a dozen altogether.

As regards the size, all that can be said is that all the biggest birds appear to be from the far West and North-West.

770.—*Alaemon desertorum*, Stanley.

So far as my experience goes, this species is confined to the more sandy tracts included in the broad strip of comparative desert which, almost everywhere, borders the bases of the hills that, alike on the north and west, separate Sindh from Khelat. It is never found congregated in flocks. It is rare to meet with a second bird within half a mile of any other. They never apparently fly, if left undisturbed, but run about, with their little porcelain white legs twinkling in the sunlight, hither and thither, for all the world like miniature coursers. Now bending down the body horizontally, now stretching themselves straight up, so as to raise their heads as high as possible; here meandering slowly about, creeping as it were along the sand, then suddenly making short darts with the utmost rapidity, and generally so conducting themselves as to render it difficult to realize that they can be larks and not plovers. I measured a considerable number of these birds in the flesh, and the following were the dimensions I obtained; the males being particularly variable in size, the female less so.

Male, length, 9.4 to 11.1; expanse, 16.25 to 17.3; tail from vent, 3.7 to 4.1; wing, 5.1 to 5.45; feet, length, 1.45 to 1.6; width, 1 to 1.2; wings, when closed, reached to within from 1.2 to 1.6 of end of tail; bill at front, 1.01 to 1.14; tarsus, 1.35 to 1.45; weight, 1.5 to 2 oz.

Female, length, 8·4 to 9·4; expanse, 14·75 to 15·4; wing, 4·6 to 4·75; tail from vent, 3·3 to 3·5; foot, length, 1·3 to 1·5; width, 0·9 to 1; wings, when closed, reach to within 1·3 to 1·5 of end of tail; bill at front, 0·85 to 0·95; tarsus, 1·2 to 1·3; weight, 1·25 oz.

The irides are brown; the legs and feet, pure China white, greyish on claws; the bill is very variable in color, sometimes it is uniform pale plumbeous, sometimes pale slaty grey, darker at base and tip, and sometimes horny grey, or greenish grey, in all cases whitish at base of lower mandible.

I will only add to Dr. Jerdon's description that there is a nearly black spot or line exactly in front of the anterior angle of the eye, and a similar one behind the posterior angle, dividing the white supercilium from the fulvous white ear coverts, which are *not* tipped blackish; from the gape, a very narrow dark line extends below the eyes till, opposite the base of the ear coverts, it expands into a moderate sized gape spot.

When on the wing their flight is very unlike that of *Galerida cristata* in whose company, or rather neighbourhood, they are so commonly met with, and when they do alight, they always run along the ground for fifteen or twenty yards before coming to a halt; then they stand up to their full height, and look backwards at you over their shoulders. It is not often that they do fly, but where closely pressed, and one must walk uncommonly quick to do that, they will rise and then the huge, broad, double white band upon their long wing is excessively conspicuous. I have repeatedly noticed this species in my diary and need say no more about it now.

787.—*Palumbœna Eversmanni*, Bp.

I only once came across this, our Indian stock dove, in any numbers in Sindh, and that was near Kumber in Upper Sindh; here there were, for a wonder, a considerable number of large trees dotted about amongst the cultivation, and on these, whole flocks of this dove were clustered. At certain seasons of the year, I understand, that this species is much more numerous; but with the exception of the one instance above mentioned, I never saw above one or two at any time, and these on only two or three occasions and never in Lower Sindh.

788.—*Columba intermedia*, Strick.

The common blue pigeon of India was tolerably abundant in the plains of Sindh during the feeding hours of the day; but its home appeared to be in the rocky valleys of the hills; and about four or five in the afternoon, I generally saw them returning to these, in moderate sized flocks. While camped at the Gaj one of

the few perennial streams that flows through the hills dividing Khelat and Sindh, I specially remarked the considerable numbers of blue pigeons that towards evening tenanted the precipices bounding, in so many places, the gorge, and the majority of these belonged to the present species. When grain is ripening, the latter appears in large flocks about Jacobabad, but is more rarely seen there during the cold season.

788 *bis.*—**Columba livia**, *Bp.*

I procured one undoubted specimen of this species, shot by Dr. Day in the sand hills of the Roree Division, and was informed that the white rumped pigeon was not uncommon there. Again in the Gaj, amongst several true *intermedia*, I obtained one *livia* and one or two intermediate forms.

The species that I described with much hesitation as *Columba neglecta* in my Ornithology of the Yarkand Expedition, must now, I am convinced, be identified with *livia*. The wing of this latter species varies, as I find, from Scotch specimens, from 8.3 to 9.75; and after comparing European and Indian birds, I entertain no doubt of the identity of the Ladak and Scotch specimens. Cashmere birds, however, which I also class under *livia*, differ slightly; they have somewhat less of *pure* white on the lower back; and the rest of what is pure white in true *livia*, is faintly shaded with very pale grey; in all other respects, size, general hue of plumage, they are identical with the European bird. Of the Sindh birds, two are typical *livia*, others resemble the Cashmere birds, and one again seems intermediate between the Cashmere bird, and the true *intermedia*, though nearest to the former.

Below Duryalo, inside the first range, Dr. Day saw large flocks of the white backed pigeon similar to the one he shot for me at Roree.

794.—**Turtur cambayensis**, *Gmel.*

Common throughout Sindh.

795.—**Turtur suratensis**, *Gmel.*

Strange to say I did *not* see this bird, and to tell the truth I should hardly have expected to find it there, but Capt. Malden informed me that it was pretty common in Upper Sindh.

796.—**Turtur risorius**, *L.*

Common throughout Sindh.

797.—**Turtur humilis**, *Tem.*

I noticed this species on one or two occasions, but only in the most fertile, most highly cultivated, portions of the province.

799.—Pterocles arenarius, Pallas.

The large sand grouse was met with occasionally in Upper Sindh, (I did not myself see it lower than Sehwan, though I heard of its occurrence,) but never in any thing like the numbers in which it occurs throughout the North-West Punjab and parts of Rajpootana. In fact as far as I could see and learn, the only rock grouse which occurred in very great numbers were *P. alchata* and *P. senegallus*.

800 bis.—Pterocles Lichtensteinii, Tem. Pl. Col. 355, 361.

The occurrence of this North African and Arabian species within our limits is a matter of no little interest. I never saw however but one single pair which, until we had shot them, I did not recognize as distinct from *fasciatus*. This was at Gool Mahomed, Mehur, Upper Sindh, where we were shooting along with a native gentleman; he recognized the birds immediately as a species of which only a few stragglers were yearly seen in mid winter. I have nothing to add to the little on record in regard to the habits of this species. We only saw the pair squatting on the bare ground adjoining a thinly cultivated field, and Mr. Watson of the Sindh Commission who was with me, shot them both almost immediately they rose.

The following are dimensions taken in the flesh :

Male, length, 10·7; expanse, 21; tail from vent, 3·2; wing, 6·65; wings, when closed, reach to within 0·7 of end of tail; bill at front, 0·54; bill from gape, 0·65; tarsus, 1·05. Weight, 8 ozs.

Female, length, 10·37; expanse, 20; tail from vent, 3; wing, 6·6; wings, when closed, reach to within 0·7 of end of tail; bill at front, 0·55; from gape, 0·62; weight, 8 ozs.

Legs, wholly feathered in front; feet, orange yellow; reticulation, white; claws, dusky, tipped yellowish; bill, fleshy brown, darker in the female; irides, brown; orbital skin, yellow.

Plumage, male.—Forehead, white; a broad semi-circular black band from the lores on either side encircling the white frontal patch. A similar white band immediately in rear of this, imperfect on the crown; the whole of the rest of the top and back of the head, pale creamy, the feathers centered black, producing an irregularly striated appearance. Chin, and part of the upper portion of the centre of the throat, dull yellowish white, unspotted; sides of the upper part of the throat and upper part of the neck, yellowish white, each feather with a tiny black spot at the tip; the ear coverts, fulvous white, slightly streaked dusky, and more or less irregularly tipped with dull black.

The lower part of the neck all round, the whole of the back, scapulars, rump, upper tail coverts, and tail feathers, pale isabelline, closely and regularly barred with black; the barrings being narrowest on the neck, and broadest on the tertiaries, and these latter as well as many of the scapulars conspicuously tipped with buffy yellow; the tips of the tail feathers isabelline, and the penultimate bars, especially in the lateral feathers, much broader than the rest. The primaries, their greater coverts, and the winglet are hair brown, darker on the coverts and winglet; the primaries everywhere very narrowly margined with dull white, except towards the bases of the first three or four, where the white margins are broader and more conspicuous; the secondaries are French grey on the outer webs, for the basal portion; dark brown on the terminal portion; the entire inner webs somewhat pale brown; the secondary coverts and the lesser primary coverts are mostly banded much like the back, but with a greater admixture of pure white and buffy yellow, and the earlier of the secondary greater coverts nearly entirely pure white on their outer webs; the breast is pale buffy yellow, intersected by a broad, conspicuous, brownish maroon band, and bounded inferiorly by a black band; below this the whole abdomen and flanks are dull white, the feathers pale brown at their bases, each with a conspicuous, somewhat crescentic blackish brown subterminal band. The lower tail coverts, somewhat similarly barred, but each feather with *numerous* bars, and the terminal one cuneiform. The tarsal feathers, unspeckled buffy white.

The female lacks alike the white frontal patch, and the black and white encircling bars, the *whole* head being similar to the *back* head in the male.

The chin, throat, neck, abdomen, lower tail coverts are all very similar to those of the male, except *first*, that the female has *no* unspotted central streak in the centre of the upper portion of the throat, and *second*, that the barrings are narrower and somewhat less conspicuous. She entirely wants the yellow breast and the two breast bands; her breast is a pale fulvous white, very regularly barred with narrow, and somewhat widely-set, dark brown bars; only, where the regular barring of the breast ends, and just before the crescentic barring of the abdomen commences, there are traces of a broad, indistinct, scarcely barred fulvous white band. The back and mantle, including scapulars and tertiaries, are a delicate isabelline yellow, very narrowly and closely barred, much more so than in the male, with blackish brown, the bars not extending quite to the tips or quite to the margins of the outer webs, of the exterior coverts and longer scapulars, and most of the scapulars being

strongly tinged with rufous, except just at the tips and margins. The wings of the female are otherwise similar to the male, but want the French grey band at the bases of the secondaries.

This species closely resembles *P. fasciatus*, but the males are distinguished at a glance, by the entire absence of the barring all round the lower throat and neck of *fasciatus*, by the much bolder character of the barrings on the back of *fasciatus*, and by the abdomen in *fasciatus* being black with crescentic white marks, instead of white with crescentic black ones as in the present species; the difference in the abdomen holds good in the females, and besides the whole chin and throat is spotless isabelline in *fasciatus* female, while it is albescent, throughout closely speckled, with blackish brown in the female *Lichtensteinii*. The upper surface of the female in both species belongs to the same type, but *fasciatus* is much more rufous and has far bolder markings. Lastly, the bills in the present species are considerably longer than in *fasciatus* which has it in the male 0.4 to 0.45; and in the female, 0.35 to 0.4.

This species has hitherto only been reported from Northern Africa, and to the best of my belief, North-Western Arabia; *fasciatus* does not appear to have been ever met with in Sindh.

801.—*Pterocles alchata*, L.

I never myself succeeded in shooting a single specimen of this species while in Sindh, but I saw one or two flocks of it some few miles west of Jacobabad, and I was assured by an Officer there who is not only a first-rate sportsman but somewhat of an ornithologist also, that in this north-west corner of Sindh they arrive in spring in countless multitudes, and are incomparably more numerous at that time than all the other sand grouse put together. They appear to remain for only a very short period. For about three months in mid-winter, this species known to local sportsmen, as the painted rock grouse, is abundant about Murdan, near Attock, in parts of the Peshawur valley, Abbottabad, and some isolated localities in Huzara. Nowhere in India does it descend far into the plains.

801 *bis*.—*Pterocles senegallus*, L.—*P. E.* 130,—*Pl. Col.* 345.—*Gould's birds, Asia, III. pl.* 6;—*guttatus*, *Licht.*—*Senegalensis*, *Shaw.*—*Alchata*, *B. Senegallus*, *Gmel.*—*Tachypetes*, *p. Tem.*

Numerous as the spotted sand grouse were incerta in localities, they were as a rule only met with within a comparatively narrow zone; that within which the inundation tracts abut on the

dry uplands and cultivation and desert inosculate. In the immediate neighbourhood of the hills themselves, we never saw them, except in parties coming up for a few minutes to drink at some perennial stream, close to where it debouches from the hills, and again we equally missed them well down into the heart of the cultivated area. Denizens of the desert as their plumage shows them to be at the first glance, they never advance far into the cultivation, to the immediate neighbourhood of which they are attracted by the facilities for obtaining food.

There is really nothing to be said about their habits; they keep together in parties of from five to fifty; very often each flock, at any rate in winter, consists of one sex only; occasionally we found both sexes intermingled; they trot about on the dry soil, picking up seeds and insects, or squat motionless sunning themselves in the early morning sun; they fly off to drink, morning and evening, often to comparatively very distant localities, and in fact comport themselves in most respects much as all the other rock grouse with which I am acquainted do. It was perhaps due to the season being yet young, but it did strike me that though I often watched them from distances of from 80 to 100 yards with my binoculars, I never saw that perpetual skirmishing going on amongst the males which I have so often noticed amongst those of *arenarius* (but no doubt later in the year) in the Punjab.

Of the six species of sand grouse as yet known to visit Sindh, four I think we may safely assert, do not breed within the province; one *exustus* certainly does, and the sixth, the present species, *senegallus*, probably does. It will be for local observers to settle this point.

The bird being new to me I measured the first dozen specimens I obtained in the flesh, and the following are the dimensions:

Males, length, 13·4 to 14·7; expanse, 23 to 23·7; tail from vent, 5·3 to 6; wing, 7·5 to 7·9; the wings, when closed, reach to within from 2·3 to 2·8 of the end of the longest tail feathers, viz., the central ones which exceed the others by from 1·75 to 2; bill at front, 0·44 to 0·47; tarsus, 1 to 1·05.

Females, length, 12·4 to 13·1; expanse, 22 to 22·6; tail from vent, 4 to 4·6; the central tail feathers only extending from 0·75 to 1·2 beyond the rest; wing, 7·3 to 7·5; bill at front, 0·4 to 0·44.

Irides, brown; bare orbital skin, yellowish; bill, pale plumbeous, bluish grey, or bluish white, always somewhat more dusky towards the tip; feet, pale plumbeous, or bluish white, paler towards the tips of the toes and whitish on scales; weight, 8 to 12 ozs., but averaging about 10 ozs.

The male has the whole chin and throat with a patch extending upwards from the throat towards, but not quite meeting on, the back of the neck, bright buffy yellow or orange buff; lores, forehead, a broad stripe over the eye continued round the nape, and the back of the neck, pale blue grey, dull and tinged fawny in some specimens; crown, occiput, and nape, a sort of dove color or pale slightly rufous fawn; back and rump, a somewhat similar, but more sandy color, in many specimens more tinged with fawn; the upper tail coverts, buffy yellow, all but the longest obscurely tipped with a somewhat pinkish mouse color. They are more or less pale dove color at their bases, which colour however is not seen till the feathers are lifted. The central tail feathers have the pointed tips black, in many specimens more or less tinged hoary buffy, and the rest of the visible portion yellowish buff; but the bases as may be seen on lifting the feathers are greyish; the lateral tail feathers are a greyish brown at base, dark shafted, with conspicuous white tips, and broad blackish brown subterminal bands; the primaries are pale isabelline, the shafts conspicuous and black; they have broad ill-defined subterminal brown bands, beyond which there is a narrow paler tipping, and they are pretty conspicuously margined on their inner webs towards the tips with still paler isabelline. The first primary has the outer web browner, the others have the outer webs, especially towards the bases, a brighter isabelline. The whole visible portions of the lesser coverts and of the primary greater coverts are yellowish fawn, or isabelline, varying much in shade in different specimens, these greater coverts dark shafted, and with a brownish tinge next the shafts on the inner webs; the scapulars bluish grey at the bases, tipped broadly, but chiefly on the outer webs, with buffy yellow, and the lesser ones tinged immediately above the yellow with a somewhat brownish purple, or dull greyish vinaceous. The secondary, median, and greater coverts like the lesser scapulars, but shewing more of the vinaceous hue. The secondaries are brown, lighter towards their bases. The lower part of the neck in front and upper breast are nearly the same blue-grey or greyish fawn as the back of the neck; the lower breast, abdomen, sides, flanks, axillaries, and wing lining isabelline or desert color; the upper abdomen often with a faint orange buffy tinge. A broad irregular deep brown patch runs down the centre of the abdomen to the vent; the lower tail coverts are greyish brown at their bases, but are broadly tipped with white (often tinged buffy or isabelline) which is the only color visible until the feathers are lifted. The lower surfaces of the quill shafts are white.

The female has the yellow chin and throat-patch like the male

but paler ; the lores and feathers immediately encircling the eye, pale isabelline white ; the whole upper parts and the neck all round pure isabelline, tinged slightly rufous on the occiput, nape, and back, and conspicuously spotted with dull, somewhat greyish, black ; the spots on the forehead and front part of the head are small and irregular ; on the nape and occiput they are more or less arranged in rows, (so as to produce more of a striated appearance) and in a band running from behind the eye round the nape, they are very much more densely set ; on the upper tail coverts they are larger ; while on the scapulars they take the form of double spots or irregular bars. The primaries and their greater coverts are much as in the male, but paler ; the central tail feathers are isabelline, dark shafted, the points greyish black, and the rest of the feather with narrow, transverse, irregular bars of the same color on both webs ; the lateral tail feathers are much as in the male ; but have the basal portions more tinged with isabelline, and more or less imperfectly barred. The breast, abdomen, wing lining, &c., are as in the male, but somewhat purer and paler ; and the abdominal patch is narrower and perhaps also somewhat paler.

This species has previously only been obtained in Northern Africa and North-Western Arabia.

I notice that Mr. Gould's figure, and indeed all the figures that I have seen of this species represent the bird as very much stouter and clumsier than it really is ; they are really comparatively very slim, slender creatures, very unlike the broad massive-chested partridge like *arenarius*.

801 ter.—Pterocles coronatus, Licht.—Pl. Col.
339, 340.—*Gould. Birds, Asia, III., pl. 7.*

I never myself was fortunate enough to secure this handsome sand grouse ; but it is at one season at any rate not uncommon in the extreme North-West of Sindh about Jacobabad, and one of the officers there, Captain Loch, very kindly gave me a skin of a male which he had shot shortly before my arrival. This species has hitherto, only I believe, been sent from Nubia, Algeria, and North-Western Arabia.

The dimensions of the male I obtained taken from the dried skin were as follows : length, about 12 ; wing, 7.1, tail from vent, 3.75 ; bill at front, 0.45 ; tarsus, 0.95.

The male has the point of the forehead white, tinged with isabelline, and a broad black stripe running upwards from the gape on either side of this ; from the ends of these stripes a broad pale bluish grey band runs over the eyes and ear coverts, and round the nape. The chin, and the base of both mandibles and a

streak about an inch long running down the front of the throat, black ; the lores and a narrow border to the black at the base of the lower mandible, white ; rest of the throat, ear coverts, and a broad collar on the sides and round the back of the neck, bright buffy yellow or orange buff ; crown and occiput, a somewhat rufous fawn or dove color, with a slight cinnamon tinge ; base of the neck all round, breast, and abdomen, pale isabelline, with a slight greyish tinge on the neck ; lower tail coverts, sides, axillaries and the greater portion of the wing lining almost pure white ; the smaller coverts along the carpal joint faintly tinged isabelline and with slightly darker shafts. The whole back, rump, and upper tail coverts isabelline, all the feathers margined and tipped with brownish grey so as to produce the effect of the ends of the feathers being all dirty. The central tail feathers greyish isabelline, dark shafted ; the laterals similar, tipped with fulvous white, and with a more or less well marked grey brown spot or imperfect transverse bar just above the tipping. The primaries and their greater coverts dull grey brown, with brownish white shafts ; all but the earlier primaries tipped, and broadly margined towards the tips on the inner webs, with isabelline ; the scapulars and the median coverts with greyish vinaceous bases, dark brown shafts except just at the tips, isabelline tips and a blackish grey band running down the shaft from some little distance above the isabelline tips, and dividing when it meets them, and extending on either web so as to bound these tippings and separate them from the vinaceous color of the basal portions of the feathers ; the dingy margins to the rump and back feathers, produce a somewhat mottled appearance, which is still more conspicuous on the scapulars, wing coverts, &c., where greyish black, yellowish isabelline, and greyish vinaceous are all mingled in patches ; the whole of the visible portion of the greater secondary coverts are isabelline, and the secondaries themselves are plain hair brown.

I did not as already mentioned procure the female which Mr. Gould thus describes—"The female has the crown, very pale cinnamon, spotted with black ; all the upper surface, buff, with numerous crescentic broken bands of brownish black ; scapularies, largely blotched with black ; throat and cheeks, yellowish buff ; under surface, sandy buff ; the throat and breast marked with crescentic bands like the upper surface, wings similar to, but paler than those of the male."

802.—*Pterocles exustus*, Tem.

Pretty common everywhere, but not apparently in any thing like such numbers as *P. alchata* or *P. senegallus*.

818.—*Francolinus vulgaris*, Steph.

In suitable localities throughout Sindh wherever there is water and long grass, the common francolin abounds. About Kusmore, on the banks of the Indus they swarm, and on the road between Shikarpoor and Sukkur, they run backwards and forwards across the road in front of you as our pheasants do in Norfolk.

820.—*Caccabis chukar*, Gray.

The Sindh chickore though not specifically separable is a great deal paler than that found in Kumaon, the valleys of the Jumna, Ganges, Sutlej, and Beas, so far as these lie within the hills, and the lower of the intermediate hill ranges. As we travel further west, an intermediate type of coloring is noticeable, and as a rule the birds from the neighbourhood of Murdan, though quite as dark on the upper surface, have the abdomen and vent, &c., much paler, in fact almost as pale as that of the Sindh birds.

So far as the general tone of color is concerned, the Sindh birds closely resemble the race from Ladak which I designated ("Lahore to Yarkand") *pallescens*; but that bird is characterized by its larger and stronger bill, and by the almost entire absence of any rufous tinge on crown, occiput, and nape, whereas, in the Sindh birds, the bills run slightly smaller than those of the common Himalayan form, and there is a decided rufous tinge on the occiput and nape. It is found throughout the rocky hills that divide the Punjab from Afghanistan and Khelat, and the latter from Sindh.

821.—*Ammoperdix Bonhami*, Gray.

This pretty little desert partridge so common in the salt range and in the hills that divide the Punjab from Afghanistan, is found, but by no means in equal numbers, in those which divide Sindh from Khelat, and again in those which run up the Mekran Coast. In these latter localities I fully expected to meet with the nearly allied *A. Heyii*, Tem., but though we shot several birds they proved to be all *Bonhami*. I have measured a great number of these in the flesh; the following are the dimensions.

Males, length, 9·5 to 11; expanse, 16 to 16·75; wing, 4·9 to 5·75; the third, or occasionally the third and fourth primaries are the longest; tail, from vent, 2 to 2·5; tarsus, 1·1 to 1·2; bill from edge of cere to point, 0·44 to 0·48; closed wings fall short of end of tail by from 1·25 to 1·75; weight, 7 to 8 ozs.

Female, length, 9 to 9·75; expanse, 15 to 16·25; wing, 4·9 to 5·1; tail, 2 to 2·5; tarsus, 1·1 to 1·2; bill as above, 0·4 to 0·46; closed wings fall short of end of tail by 1·1 to 1·75; weight, 5·75 to 8 ozs.

Legs and feet, pale dingy wax yellow, in some greenish, in some dusky yellow; claws, pale brown; the irides vary a good deal: they are generally either bright yellow, orange, or orange brown; but in some specimens, they were dull red, and in some a bright brown; the bill is generally orange, somewhat dusky on the culmen; in some, however, it is a brownish orange red, and in the females especially often brown above and orange below, or even yellowish brown; the cere is generally a hoary orange red, sometimes only brown.

822.—*Ortygornis ponticeriana*, Gmel.

Pretty common in the neighbourhood of cultivation throughout Sindh.

829.—*Coturnix communis*, Bonn.

I met with this constantly in Sindh, but never far from cultivation. I nowhere put up more than a couple or two in any one place, but in certain seasons of the year I am told that they are very plentiful.

830.—*Coturnix coromandelica*, Gmel.

I myself never saw this bird alive in Sindh, but it is very common during the monsoon and I saw specimens that had been procured during the previous rains and others have since been sent to me.

835.—*Turnix Dussumieri*, Tem.

Shot at Jacobabad by Capt. Malden. We failed to secure any specimen in Sindh.

836.—*Otis Edwardsi*, Gray.

One specimen was shot some years ago near Kurrachee, and it is not very uncommon, I hear, in the Thurr and Pakur districts, east of the Indus.

837.—*Houbara Macqueeni*, Gray.

The Houbara though scarce in Sindh compared with what it is in the North-Western Punjab, is very often met with in those barren plains which I have already described (*c. f. supra sylvia delicatula*, &c.) where the Lana and Bouee afford it shelter. I never myself saw above a couple of pairs in any one day, and never took the trouble to go after it; but as an idea was prevalent among sportsmen that it was different from the Punjab Houbara, I examined a couple of specimens that one of them had by him, and found that they were identical with the Punjab birds. Mr. Gray makes or accepts two species of this genus, or sub-genus; the

one, the original *houbara* of Gmel., from North Africa, Arabia, and Spain, and the other, the present species, from "Punjaub, Sindh, England, Germany, Belgium." Can these really be distinct? and if so, wherein does the distinctness lie?

838.—*Sypheotides auritus*, Lath.

We never met with this species, but yearly in August or September, when the inundation has been good, from 10 to 30 couples of this beautiful and graceful little bustard are killed in the neighbourhood of Kurrachee. I have not yet heard of their appearance elsewhere in the province.

840. bis.—*Cursorius gallicus*, Gmel.

The cream colored courser was met with, though sparingly, in all suitable localities, sandy wastes, especially in the neighbourhood of cultivation. They are permanent residents, and breed in Sindh as they do in suitable localities in the northern and western districts of the Punjab and almost throughout Rajpootana.

There has been an idea that our Indian race was distinct and Jerdon hesitatingly proposed for it the name of *Jamesoni*; I have compared an African specimen (a bad one it is true) with a series of Indian ones, and I can discover no difference whatsoever between them.

844.—*Squatarola helvetica*, L.

I only met with this species in the Kurrachee Harbour where it was very abundant; feeding in company with *Cirrepidesmus Geoffroyi*, *mongolicus*, and numerous other little waders on the vast mud flats that the retreating tide daily lays bare. All were in winter plumage.

845.—*Charadrius fulvus*, Gm. *longipes*, Tem.

I myself never met with this species in Sindh; but Dr. Day who is well acquainted with the bird, and who was an ardent ornithologist himself before he turned his attention to Ichthyology, observed a pair in the neighbourhood of Larkhana. Dr. Jerdon says, that many of this species breed in India even as far south as Nellore; hitherto none of my correspondents have ever been able to verify this fact; Mr. F. R. Blewitt who watched them carefully for some years at Raipore on the stony plains about which they occur in myriads, found that by the 1st May they become wild and shy, and by first of June disappear entirely.

Quite recently, however, Mr. A. J. Rainey, most obligingly sent me a nest and egg, with the following remarks:

Nest and egg of the Golden Plover, (*Charadrius longipes*, Tem.)

September 22; 1871.—"At Khálistpúr, about 1½ miles from

the sub-division of Khulná, in the district of Jessore, Province of Lower Bengal, on rather wet ground, in a bare field, from which a crop of rice had been reaped about a month before, found the accompanying nest and egg, (along with two other eggs with their shells broken, which I cast away), on which was sitting the parent bird, evidently a female: it flew off on my approach, and joined a flock of the same species of plover close by, into which I fired, and bagged half a dozen of them."

The nest is of coarse grass and paddy stems loosely put together, say six inches in diameter and a couple of inches thick, with a slight central depression. The egg, I should have pronounced to be that of the painted snipe and far too small for this present species, but I presume Mr. Rainey is correct. The egg is a moderately broad slightly pyriform oval, with a pale café au lait ground, thickly and boldly blotched with blackish brown; there are no secondary markings such as characterize plover's eggs, and the shell has a fair amount of gloss. The egg measures 1.35 by 0.96. Can this really be the egg of *C. fulvus*?

It may be well to note that there are three nearly allied golden plovers; viz., the present species from North Eastern Africa, Asia generally, the Indian Archipelago, and Australia; *Pluvialis* from Europe, Asia Minor, and many parts of Africa; and *Virginicus* from America.

Pluvialis is at once distinguished by its pure white axillary plumes which are brownish grey in the other two species.

Fulvus and *Virginicus* differ chiefly in their relative proportions, the former being always smaller. The following are dimensions of the three given by Harting:

	Bill.	Wing.	Tarsus.
<i>C. virginicus</i> ...	1	7 to 7.4	1.6
<i>C. fulvus</i> ...	0.8 to 0.9	6.4 to 6.6	1.5
<i>C. pluvialis</i> ...	0.9	7.5	1.4

846.—*Cirrepidesmus Geoffroyi*, Wagler.

This, the largest of the small shore plovers, was met with in thousands in the Kurrachee Harbour, feeding along with its congeners, Godwits, oystercatchers, turnstones, and the like, on every mud flat. It was equally common, I was told, about the mouths of the Indus, from which locality I saw a specimen, and in all suitable localities along the coast. With one exception all the very numerous specimens I obtained were in winter plumage; but one male shot on the 2nd February, has the broad rufous pectoral patch, rufous forehead, rufous collar round the back of the neck, and rufous tinge on many of the scapulars, indicative of the breeding plumage. I measured a great number of

these in the flesh ; I found that there was no constant difference in the size of the sexes ; there were equally large males and large females. The following are the dimensions :

Length, 8·5 to 9·25 ; expanse, 17·5 to 19 ; tail from vent, 2·2 to 2·5 ; wing, 5·4 to 5·95 ; bill at front, 0·95 to 1·05 ; tarsus, 1·5 to 1·65 ; wings, when closed, reach from within 0·15 of, to quite to, the end of tail ; weight, 2·7 to 3 oz. Legs, greenish grey, or pale olive ; feet, dusky or blackish ; bill, black ; irides, brown.

847.—*Cirrepidesmus mongolicus*, *Pall.*

This species was found in the Kurrachee Harbour in vast numbers and also in various localities along the Mekran Coast. Only one specimen shot at Korebut, on the 15th February, exhibits any traces, and these only the very faintest, of the summer plumage ; of these too, I measured many in the flesh, and could detect no constant difference in the size of the sexes. The dimensions were, length, 7·25 to 8 ; expanse, 15·75 to 16·25 ; tail from vent, 1·9 to 2·3 ; wing, 4·8 to 5 ; bill at front, 0·66 to 0·71 ; tarsus, 1·27 to 1·39 ; weight, 1·7 to 1·9 ozs. Legs dusky plumbeous, greenish dusky, or olive green ; bill, black ; irides, brown.

848.—*Ægialophilus cantianus*, *Lath.*

We met with this species all along the banks of the larger rivers both in the Punjab and Sindh ; occasionally in some of the inland waters of Sindh, and commonly in the Kurrachee Harbour and along the Mekran Coast. One specimen killed on the 6th February, had nearly assumed the summer plumage ; the lore streak and ear coverts were black ; the large patch on either side of the breast black ; the crescent on the forehead above the white frontal band, black ; and the crown, occiput, and nape strongly tinged with rufous. Specimens measured in the flesh, gave the following dimensions—length, 6·5 to 6·8 ; expanse, 13 to 14 ; tail from vent, 1·9 to 2·1 ; wing, 4·1 to nearly 4·5 ; bill at front, 0·55 to 0·65 ; tarsus, 1·1 to 1·2 ; weight, 1·2 to 1·4 oz.

849.—*Ægiatitis fluviatilis*, *Bechst* ; equals, according to *Mr. Gray*, *curonicus*, *Besch.*

More common than the last species, but found in the same localities ; may always be distinguished from the preceding by its slenderer head, and by having the shafts of all the primaries but the first brown, whereas in the three preceding species, the shafts of all the primaries are white. I shot a specimen of this

at Gwader on the Mekran Coast, and I saw, but failed to procure a specimen, as I was endeavouring to shoot an osprey at the time, a flock of them near Muscat.

There is some little confusion in regard to what our smallest Indian shore plover really is. Mr. Blyth says unhesitatingly *curonicus*, which Mr. Gray gives as a synonyme of *fluviatilis*, Bechst, and to which he assigns a habitat of East and South Europe, Egypt, Red Sea. On the other hand, Mr. Gray only assigns to India *philippinus*, Lath., which he identifies with *pusillus*, Horsf., *minutus*, Pall., *simplex et collaris*, Licht., *intermedius* Ménétr, and *zonatus*, Swains, and which would appear to occur also in China, the Philippine Islands, and West Africa!

Jerdon, I think, clearly describes *fluviatilis*; of *philippinus*. Blyth says, that "in nuptial dress, it has the usual white forehead surmounted by a black band, also a black loreal streak and auriculars in part; crown, rufescent brown, with a more rufous periphery, some black behind the white nuchal collar above, the black pectoral streak narrow or interrupted in front, and the tail unbanded, with the three outermost feathers white; legs, pale in dry specimens; length of wing, 4 inches; of tarsi, 1.12 inch."

If I have rightly identified the birds, we have *both* in India; *fluviatilis* is the one common in the North-Western Provinces, the Punjab, and Sindh, and probably everywhere along the west Coast. It occurs also on the east, but there and at the Andamans, *philippinus* also occurs.

Fluviatilis breeds freely with us. I have its eggs sent me by Mr. F. R. Blewitt, from the Mahanuddy in the Raipoor district, and from the Ganges near Futtehgurh.

Philippinus, as far as I yet know, does not breed on the main land, but very likely may on the Andamans and Nicobars.

851.—*Vanellus cristatus*, Meyer.

The peewit is rare in Sindh; I only saw it occasionally in the neighbourhood of some of the larger lakes.

852.—*Chettusia gregaria*, Pall.

This lapwing was often met with; chiefly in waste places in the immediate neighbourhood of cultivation. As a rule this is an upland bird; you may see it occasionally near jheels; but it is most common in the neighbourhood of cultivation on waste dry uplands. It keeps together in flocks of from 20 to 100, and until shot at once or twice, is fearless and tame.

Dr. Jerdon only describes the summer plumage of this species.

In winter plumage the crown and occiput are *not* black, but olive brown, more or less mottled with dusky, and on the crown, with fulvous white. There is *no* dark line through the lores, which with the chin, throat, abdomen, lower tail coverts are pure white; the sides and front of the neck and breast are greyish white, more or less tinged, streaked, and mottled with greyish brown; the forehead and superciliary stripe are tinged rufous; most of the feathers of the mantle are narrowly tipped with rufous white or pale buffy; and the abdominal patch is entirely wanting. I do not know whether this species breeds in India, but I think it does not.

853.—Chettusia flavipes, Savigni. *C. leucura*, Licht.

I often met with this species in small parties in the neighbourhood of large pieces of water in Upper Sindh; but in southern Sindh, I only once saw it. It is essentially a bird of the swamps, very rarely seen on the banks of rivers or running streams. It is only a winter visitant to India, but during that season is very plentiful throughout the Punjab, Oudh, the North-Western Provinces, and Rajpotana, in *suitable* localities.

855.—Lobivanellus indicus, Bodd. *Goensis*, Gm.

Abundant every where in Sindh, but not nearly so numerous as in the North-Western Provinces.

858.—Esacus recurvirostris, Cuv.

This great stone plover occurs, though nowhere very numerous, in all the great rivers of the Punjab and equally so in the Indus in Sindh. A fine male that I measured was, length, 21; expanse, 36·5; tail from vent, 5·5; wing, 10·5; elongated tertials exceed primaries by nearly an inch; bill at front, 3; tarsus, 3·4; irides, light yellow; legs and feet, very pale yellowish green; bill black, greenish yellow at the base; the bird weighed 1 lb. 12 oz.

859.—Ædicnemus crepitans, Tem.

The goggle-eyed plover is not uncommon in Sindh. We met with it in several occasions in rather open tamarisk jungle in comparatively large parties. Salvadori separates our Indian thick-knee as *indicus*; but I confess that I have great doubts of the necessity of this. Upper Indian birds do run somewhat smaller than the European; but the Sindh birds are I think larger than the upper Indian ones, and I expect that if a large series were got together, every possible variation in size would be found. One male I killed measured, length, 16; expanse, 30·75;

tail from vent, 7.2 ; bill at front, 1.27 ; tarsus, 2.85 ; wing, 9 ; weight, 0.75 lbs. These dimensions are no doubt much smaller than those given by Macgillivray, who gives length, 17.5 ; expanse, 29 ; tail, 3.75, bill at front, 1.33 ; tarsus, 3.08 ; wing, 9.83. But these birds vary in size very materially, and I have seen European specimens no bigger than many Indian ones, and I have shot Indian ones which looked bigger than the one of which I have given the dimensions above.

860.—*Cinclus interpres*, L.

The turnstone was abundant in the Kurrachee Harbour and not uncommon along the Mekran Coast but everywhere was shy and wild, and I had great difficulty in procuring the seven specimens I actually brought to book. My birds were all killed early in February, and were all in the winter plumage, which Dr. Jerdon does not describe and which it is impossible to identify with the full breeding plumage which he quotes from Yarrell. The sexes do not appear to differ in size nor even in plumage, at any rate in winter ; and although Macgillivray says, that the females have the black parts more tinged with brown, no such difference is observable in my winter killed specimens. Dimensions taken from the fresh bird :

Length, 9.35 to 9.5 ; expanse, 18.5 to 19 ; wing, 5.9 to 6.1 ; tail from vent, 2.4 to 2.5 ; bill at front, 0.8 to 0.9 ; tarsus, 0.97 to 1.05 ; weight, 3.75 to 4.3 oz.

The bills were black ; irides, brown ; the legs in some, orange red, in others, orange yellow ; in both cases somewhat dusky on the joints and with the claws dusky.

Plumage.—The chin and centre of the throat, the middle of the breast, abdomen, lower tail coverts, axillaries, wing lining, middle and lower back, longer upper tail coverts, and the basal portions of all the tail feathers, the greater portion of the inner webs and bases of the secondaries and tertiaries, and a few of the median scapulars (not seen till the others are raised), the tips of the secondary greater coverts, and the tips of some of the later secondaries, pure white. The terminal rump feathers and the shortest upper tail coverts, and the terminal portions of the tail feathers, blackish brown (tipped most narrowly on the central and most broadly in the lateral tail feathers) with white. A line from the gape, cheeks, ear coverts, the sides, and base of the neck in front and the sides of the breast, white, mottled broadly with blackish brown. Lores and forehead brownish, with an obscure darker brown line from the point of the eye to the base of the culmen. The crown of the head, hair brown ; all the feathers edged whitey brown ; the back of the

neck and interscapular region, blackish brown, with green reflections; the feathers margined with paler brown, and the white bases of the feathers shewing through a good deal; the scapulars similar, but rather paler. The primaries and their greater coverts, blackish brown; the shafts of all the former, white, except just at the bases and tips where they are tinged brownish. The edge of the wing just at the base of the primary greater coverts, white; the sixth to the tenth primaries shewing the white of their bases on their outer webs just beyond the tips of the greater coverts. The terminal portions of the secondary greater coverts hair brown, margined, and as already mentioned, broadly tipped with white; the tertiaries brown, with greenish reflections, margined exteriorly towards the tips with fulvous white; the secondaries almost entirely white; but with the visible portion of their outer webs, and a corresponding patch on the inner webs, next the shaft, brown; the extent of this brown diminishes, and its tint pales as the feathers recede from the primaries.

861.—*Dromas ardeola*, *Payk.*

I secured no specimens of this species, though I more than once fancied I saw it in Kurrachee Harbour, and since my return from Sindh Mr. James, of the Civil Service, informs me that a specimen has actually been procured in the harbour.

862.—*Hæmatopus ostralegus*, *L.*

Numbers of oystercatchers may be daily seen feeding at low water on the mud flats of the Kurrachee Harbour in company with innumerable waders. When the tide is up, they hang about oyster rocks outside the harbour, and we saw them in various localities along the Mekran Coast, and again a pair on the rocks outside the Muscat Harbour. They were always terribly wary, and it was almost impossible to procure a specimen, the few we did obtain were only secured after a vast amount of trouble. A male measured in the flesh, length, 15·5; expanse, 34; tail from vent 4·4; wing 10; wings when closed reach to end of tail; bill at front, 3·1; tarsus, 2·1; weight, 1 lb. 6 ozs.

The bills in this species are very variable in length and range from little more than 3 to 3·6; the legs and feet are brownish purple; the bill, bright reddish orange, dingy and yellowish at tip; the eyelids orange red, and irides red.

863.—*Grus antigone*, *L.*

I only saw one single specimen of the sarus in Sindh, and I think it must be very rare in the province. In any part of the

North-West, one would have certainly seen a couple of hundreds during such an extended trip as we made.

864.—*Grus leucogeranus*, *Pall.*

Twice saw small parties of these, once at Guibee Dera, and once at the Madho Jheel, in the Mehur sub-division. They are, I fancy only occasional visitants, for the boatmen had no distinctive name for them, and did not seem to know what they were.

865.—*Grus cinerea*, *Bechst.*

Very common throughout the western Punjab especially in the neighbourhood of the larger rivers on the banks of which they generally spend the warmer portions of the day. Not uncommon in Sindh, but chiefly found in the better cultivated portions lying within (for them) easy reach of the Indus.

866.—*Anthropoides virgo*, *L.*

I only once saw the Demoiselle crane in Sindh, and that was close to the Muncher Lake.

871.—*Gallinago scolopacina*, *Bp.*

872.—*Gallinago gallinula*, *L.*

Both these, *objets aimés* of every sportsman, are common enough during the cold season, in suitable localities throughout Sindh.

873.—*Rhynchæa bengalensis*, *L.*

I shot a single specimen near Mehur. During the cold season this species is very scarce, quite, I believe, an accidental straggler, in Sindh, but in the early autumn, it is less uncommon.

875.—*Limosa ægocephala*, *L.*

This godwit was observed occasionally on the banks of the Indus and all the larger rivers of the Punjab, and in several of the swamps and broads of Sindh, I met with it in very large flocks; on one occasion I killed nearly two dozens at a single shot, and on another occasion, one of the party made an almost equally large bag.

875 *bis.*—*Limosa rufa*, *Tem.?* *L. Lapponica*, *L.*

This species was only met with in the Kurrachee Harbour where I daily observed it feeding in large flocks. It was excessively wary, and though with others I was continually after it, we only succeeded in securing six specimens, all in winter plumage; this bird is not described by Dr. Jerdon. The following are the dimensions of this species:

Males, length, 14·5 to 14·8; expanse, 27 to 27·75; tail from vent, 2·7 to 3·3; wing, 7·8 to 8·4; tarsus, 2; bill at front, 2·8 to 3·1; weight, 8·1 ozs.

Female, length, 15·75; expanse, 28; tarsus, 2; tail, 3; wing, 8·4; bill at front, 3·65; weight, 9 ozs.

The legs and feet are black, in some dusky plumbeous; irides, brown; the bill pinkish, for about the basal half, black or dusky on the terminal half.

In the winter plumage, there is a broad indistinct white superciliary band, and the feathers immediately below the eye are also white; the chin and throat are pure white; the forehead, the whole top, back, and sides of the head, and the neck all round, brownish white, closely streaked with darker brown, the streaks very minute on the cheeks and sides of the head, somewhat larger on the front of the neck, and darker and stronger on the head and back of the neck, where but little of the white remains visible. The upper back, pale earthy brown, each feather with a narrow dark brown central shaft stripe and mostly margined somewhat paler. The breast, pale greyish brown, more or less obscured by the albescent tipplings to the feathers, and some of the feathers with inconspicuous darker shafts; the feathers of the central portion of the breast, if raised, will be found to be not merely tipped whitish, but to be also obscurely barred with white. The abdomen, vent, and lower tail coverts are pure white, as are also the axillaries and wing lining; the rump is white with a few cuneiform or heart-shaped blackish brown spots; the upper tail coverts white, with narrow irregular arrow-head bars; the tail feathers grey brown, with dark shafts tipped white, and mottled with white on the inner webs of the exterior ones, in some with traces of darker transverse bars. The primaries and their greater coverts, black; the shafts of the first two or three, white, subsequent ones, brownish white; the scapulars and tertiaries, pale brown, darker shafted, margined paler, and many of them more or less tinged with ashy; the lesser and median coverts like the scapulars, but margined whitish; the secondaries brown, paler on the inner webs, and margined on both webs and on the tips with white, as indeed are also, so far as the tips are concerned, the later primaries, though less conspicuously so; the greater secondary coverts a more ashy brown, narrowly margined with white. In one specimen which appears to be further advanced, the lateral tail feathers are distinctly barred blackish brown and white; the cuneiform barrings on the rump and upper tail coverts are more marked; the axillaries are all strongly barred; the feathers of the sides and flanks and also the lower tail coverts exhibit numerous arrow-head bars;

and one or two rufous or chesnut feathers with black bars have began to shew themselves on the breast.

The summer plumage is thus described by Temminck—

Male.—"Upper part of the head and occiput, blackish brown, mixed with streaks of reddish yellow; a band of the latter colour over the eyes; lores, blackish brown; cheeks and throat, of a yellowish red; all the lower part of the body, including the under tail coverts, pale yellowish red; upper part of the back and scapulars, blackish brown, marbled with reddish yellow and whitish grey; lower part of the back and rump, white, marked with longitudinal yellowish red spots; the tail marked with brown and white bars, those of the latter tint irregularly distributed, and disposed more or less longitudinally; quills black from their tip, the remaining part towards the bases, blackish brown, with their inner webs whitish grey, marbled with pale brown; the secondaries, grey, with the shafts and margins, white.

Female.—"The head and lores as in the male; the throat, white, marked with reddish grey; cheeks and neck, very light reddish, with numerous brown streaks, which become broader, and form small transverse brown and white bars on the sides of the breast; the latter and the belly marbled with white and very pale reddish; the abdominal part, white; the lower tail coverts, reddish white, with light brown bars."

876.—*Terekia cinerea*, *Güldenst.*

This species was very abundant in Kurrachee Harbour and I met with it once or twice on the Mekran Coast. At a little distance it was very like the lesser redshanks. Most of our specimens, killed early in February, were still in winter plumage, a few of them exhibited black streaks on the scapulars indicative of the coming summer plumage. By some oversight, I measured none of the males. Females, measured in the flesh, varied as follows—length, 10 to 10·5; expanse, 17 to 17·25; tail from vent, 2 to 2·5; wing, 5·1 to 5·2; bill at front, 1·75 to 2; tarsus, 1·1 to 1·15; legs and feet, pale reddish orange; bill, orange at base, blackish at tip.

877.—*Numenius lineatus*, *Cuv. Regn. An. 2nd Ed. I., p. 52. Note 2. (? N. Major. Fauna Japonica. Aves, Pl. 66.)*

Although I follow Mr. Blyth (and Prof. Schlegel?) in considering the Indian curlew as possibly deserving of specific separation, I am yet by no means certain of the fact. Mr. Blyth remarks, *Ibis* 1867 p. 158, "British curlews are far more uniform in size, and have the breast and flanks much more conspicuously

spotted," and he identifies our Indian bird with Schlegel's *N. Major*.

Schlegel, Faun. Japon., p. iii, thus contrast the two species.

	<i>Arquata</i>	<i>Major</i> .
Bill,	4·94 to 5·94	7·11 to 7·22
Tarsus,	3·1	3·56 to 3·65
Wings,	12·05 to 12·4	12·4 to 12·68

Spots of the flanks—transversal, broad, and triangular.

Spots of the flanks in general—longitudinal, most commonly narrow, and sometimes indistinct.

Now as regards European curlews being more uniform in size than Indian ones, I must beg to doubt the fact. There appears to be just the same disproportion between the sexes of the European bird that there is amongst the Indian. I have an English male before me, of which the bill is only 4·85, and again an English female, with a bill 6·12.

Then as regards what both Mr. Blyth and Prof. Schlegel say as to the flanks of the European bird being much more broadly spotted, I regret that I cannot in any way concur; on the contrary, I believe that differences in this respect are purely individual; I have one English bird in which the spots on the flanks are considerably narrower and more longitudinal than in fully half my Indian specimens, and again some Indian birds that have the spots, regular broad arrow-head bars, fully as broad as any English specimen; and generally, I may say, that the Indian and English birds at any rate to judge from my specimens of both, though varying materially as individuals *inter se*, are absolutely inseparable as races, so far as plumage is concerned.

But so far as I can judge, there really is a marked difference in the length of the bills of the two species. I myself have an English male with a bill only 4·85, a female 6·12. Macgillivray gives the bill at 6·25; so that, probably, taking the two sexes, the bills of the English birds vary from 4·85 to 6·25. Now the bills of the males of Indian birds vary from 5·25 to 5·9, and those of the females, from 6·5 to 7·5, so that taking the two sexes together, the bills of our Indian birds vary from 5·25 to 7·5, against 4·8 to 6·25 in the English. As to the Indian birds, I can speak with absolute certainty, having carefully measured the bills of 18 specimens. Of the English bird, I cannot of course speak so confidently, but should their bills really only vary within the limits above assigned, then the difference in length is very considerable.

Another point that strikes me in the Indian birds, and it is impossible to lay half a dozen of each kind together without at once noticing it, is that the bills of our birds are much more markedly curved than those of the European ones. As for the dimensions assigned by Schlegel for the European bird, he must have measured mounted individuals, in which the feet being set at right angles to the tarsus, the full length of the latter cannot be measured. A very small English male, with the bill only 4·85, has the tarsus fully 3·2, a correspondingly small Indian male, with the bill 5·25, has the tarsus precisely the same length as the English one, while the tarsus of the largest Indian male I have, is only 3·3. The longest tarsus of any Indian female is only 3·5, and that of a fine female, with a bill 7, is only 3·3. This same bird has the wing only 11·6; and the largest bird has a wing of only 12·6.

As far as I can judge, therefore, the only real distinction that exists between the Indian and English birds is that the former have longer bills which are conspicuously more curved towards the tips; whether this is sufficient to constitute a distinct species, is merely a matter of opinion.

The grey curlew is very abundant throughout the cold weather along the banks of all the greater rivers of the Punjab and of the Indus in Sindh, and is nearly equally common in the neighbourhood of all the larger inland pieces of water as well as in all the harbours and back-waters of its coast and of the Mekran Coast. I measured one day three fine females in the flesh, and the following were the results:

Length, 25 to 26·5; expanse, 40·5 to 43; tail from vent, 4·8 to 5·4; wings, 11·6 to 12; bill at front, along the curve from forehead to tip, 6·8 to 7·25; tarsus, 3·25 to 3·5; weight, 1 lb. 11 ozs., to 1 lbs. 14 ozs. I have some longer billed birds, and some with longer wings, none with a longer tarsus than one of these: they are certainly three fine females; and I wish some one at home would measure half a dozen fine females, and see what amount of difference really exists between the two races. I have many smaller females than these, and the males of course, as may be judged by the dimensions I gave of their bills, are altogether smaller.

880.—*Philomachus pugnax*, L.

Ruffs and Reeves, so common during the autumn and winter in Upper India generally, were apparently scarce in Sindh. I think I shot three altogether, and may have seen a score from first to last. I understand however, that just towards the close of the inundation, they sometimes appear in very large flocks, disappearing again in about a month.

881 bis.—*Tringa crassirostris*, Temm. et Schleg., Faun. Jap., p. 107, pl. XIV.—*Schaenicolus magnus*, Gould, P. Z. S. 1848, p. 39.—*Totanus tenuirostris*, Swinhoe. nec Horsf. Lin Trans., Vol. XIII., p. 192.—*T. magna*, Bonap.

Whether professor Schlegel be correct or not in asserting that *tenuirostris*, Horsf, loc. cit. really refers to *Totanus stagnatilis*, this present species must assuredly stand under Schlegel's name of *crassirostris*.

How Mr. Gray could possibly assign to *crassirostris* the coarsest and thickest billed of *Tringa*'s, Horsfield's name of *tenuirostris*, which he describes as "*rostro tenui*" and in regard to which he remarks that "the beak is more slender than in the European species of this genus" (*Totanus*) is "one of those things that no fellah can understand;" but Mr. Gray rarely, if ever, did any thing without very good reasons. I much wish the matter could be cleared up. The occurrence of this fine species in Sindh was to me most unexpected. I found it common (but very wary) in the Kurrachee Harbour, and saw a small party of it again near Gwader; common as it was at Kurrachee, its extreme shyness prevented my procuring more than seven specimens, all these killed in the month of February, are in winter plumage, none have the slightest rufous tint on the upper surface, and only one or two large black spots on the breast betray any indication of the summer plumage.

I measured five of these in the flesh, and the following are the dimensions, I noting that there seems no appreciable constant difference in the sizes of the sexes.

Length, 11.35 to 12; expanse, 23.5 to 24; tail from vent, 2.7 to 2.8; wing, 7.1 to 7.3; bill, at front, 1.6 to 1.85; tarsus, 1.4 to 1.55; wings when closed reach from 0.3 to 0.4 beyond end of tail.

Bill, black, sometimes paler at the base of lower mandible; legs and feet dusky, greenish dusky, yellowish plumbeous, or pale plumbeous; according, I suppose, to age or seasonal progress.

Plumage.—In the winter plumage the upper surface reminds one not a little of that of *Totanus stagnatilis*. The whole lower parts are white, but the base of the neck in front, and the sides are marked with numerous small brown striæ, and the upper breast, besides more or less of these striations, is mottled with larger pale brown spots, here and there interspersed with conspicuous heart-shaped blackish brown spots, which are the first traces of the coming summer plumage.

Lores, top, back, and sides of the head and neck very pale

greyish brown, all the feathers narrowly streaked along the shaft with dark brown. The upper back and whole mantle is a mixture of pale brown and ashy, most of the feathers with blackish shafts, more or less darkly centred, and all conspicuously, though narrowly, margined and tipped with white. Lower back and rump brown, the feathers narrowly and regularly margined, with white; upper tail coverts similar, but the white margins much broader and the brown more or less obsolete on many of them. Tail feathers, greyish brown; greyer and somewhat darker on the central ones, and paler and browner on the external ones, all are excessively narrowly, in fact almost obsoletely, bordered with white. The primaries and their greater coverts are hair brown, most of the latter tipped white; the secondaries and their greater coverts are a pale somewhat greyish brown, all of them narrowly, but the coverts less narrowly of the two, margined with white. The wing lining, except just at the margin of the wing which is mottled with brown, pure white; the axillaries white with traces of irregular, wavy, pale brown bars. There are a few elongated triangular pale brown dashes on the flanks, and in some specimens one or two larger blackish brown spots pertaining to the summer plumage.

According to Schlegel, the summer plumage is as follows: "Feathers of the head and neck each with a large dark brown longitudinal streak or spot on an albescent ground, which is tinged with brownish rufous on the nape. Feathers of the breast and nape, brownish black, each with a whitish transverse band about the middle often tinged with brownish red towards the middle. The rest of the lower parts and the rump, pure white; spotted, except towards the middle of the abdomen, with broader or narrower dark brown spots. Back and wings, brownish black, lighter on the wing coverts; all the feathers spotted and bordered with a bright brownish rufous, gradually disappearing towards the edge of the wing. Lower wing coverts, white, becoming black at the base."

This species, (though it is larger, and stouter,) so far as winter plumage and general appearance go, very much resembles the knot, and I have no doubt that it was a specimen of this species and not of *T. canutus* of which Dr. Jerdon obtained a solitary specimen at Madras. Hitherto this species has been obtained at Swan River, and on the north coast of Australia, in Borneo, Java, and many of the islands of the Indian Archipelego, Japan, on the coasts of China, the banks of the lower Amoor, and the Sea of Okhotsh; but its occurrence in large numbers as a regular seasonal visitant so far east as Kurrachee, is a very noteworthy fact.

As to its habits, they are in no way different from those of the rest of the family, and it is always met with feeding on the mud flats in company with the bar-tailed godwit, the turnstone, oystercatchers, the sanderling *et id omne genus*. I ought to note that Capt. Malden thought he had obtained *T. canutus* at Kotree on the 14th November, 1867, but I cannot help suspecting that his bird was the present species.

882.—*Tringa subarquata*, Gould.

The curlew stint was pretty abundant on the Sindh and Mekran Coast, much less so however than the dunlin. While the dunlin abounds on every large river of Upper India throughout the cold season, I have never yet met with *subarquata* more than one hundred miles from the sea coast, except at the great Salt lake of Rajpootana at Sambhur, whence, as also from the Yarkand river, I have it in summer plumage. It does not however breed at Sambhur.

883.—*Tringa cinclus*, L.

The dunlin was abundant everywhere in the Indus, the Kurrachee Harbour, along the Mekran Coast and all the large rivers of the Punjab. The only inland piece of water on which I noticed it was the Muncher Lake.

884.—*Tringa minuta*, Leisler.

This little stint was common in Sindh as it is throughout India. Mr. Blyth in his Commentary on Jerdon's Birds, *Ibis*, 1867, p. 168, substitutes for *S. minuta* correctly, as I think, given by Dr. Jerdon, *T. damacensis*, Horsf. He does not explain the grounds upon which this is done; but assuming his meaning to be that *damacensis* and not *minuta* is the species which we commonly obtain in India, I think that there is no doubt that he is in error.

I have the true *minuta* from the Mekran Coast, Kurrachee, various parts of Sindh, the Punjab, the North-West Provinces, Oudh, the Central Provinces, as far as Raipoor, and Bengal as far east as Dacca. I have never seen *damacensis* from India, nor do I think that the bird comes as far east. In Peninsular India and Ceylon, it may occur, but all the specimens I have hitherto seen labelled *damacensis* were the true *minuta*, or the slightly larger oceanic race *Tringa albescens*, Temm which I am half disposed to concur with Schlegel in uniting with *minuta*.

It may be useful to point out the leading distinctions between *minuta* and *damacensis*, Horsf., (= *T. sub-minuta*, Middendorff, and *salina*, Pallas) as this latter is found throughout Eastern Asia, in Java, Sumatra, Borneo, and other islands of the Archipelago,

and may not improbably occur in the Nicobars, even if it does not extend to the Andamans,* Southern India, and Ceylon.

The two main points of distinction are these: In *minuta*, the shafts of the primaries are mostly white, in *damacensis*, as in *Temmincki*, with the exception of that of the first primary, the rest of the shafts are brown, and while in *Temmincki* the first shaft is nearly entirely white, in *damacensis* it is decidedly tinged with brown. The second distinction consists in the much greater length of the mid toe. *T. minuta* is doubtless very variable in dimensions; but mid toe and nail included, no specimen of *minuta* ever exceeds, I believe, 0·8 in length, while in *damacensis* the mid toe and nail together, measure a full inch; the bill also in *damacensis* measures about 0·75; in no specimen of *minuta* that I have examined, including the larger race known as *albescens*, does it exceed 0·73, and in some specimens, both English and Indian, it does not exceed 0·65. M. Schlegel, I observe, gives the bill of some of his specimens of *minuta* from Australia, Timor, and Java, all of which doubtless belong to the variety *albescens*, at 9 French lines, which is about 0·82 English, but I have examined a great number of specimens without meeting with any such elongated bills, and possibly we do not measure exactly in the same way.

I do not think that any other constant distinctions can be established between *damacensis* and *minuta*. Mr. Blyth remarks that *minuta* has a broader bill; but this certainly does not hold good when several birds of each species are compared; as a rule I should fancy that *subminuta* was somewhat smaller than *minuta*.

As regards the variation in size of *minuta*, Schlegel gives the wings of European specimens, as from about 3·76 to 3·93; of African specimens, as from 3·83 to 3·93; Formosan specimens, as from 4 to 4·11; Chinese, 4·2 to 4·38; Javan, from 4 to 4·2; Moluccan, 3·93 to 4·2; new Guinea, 4·11; Australia, 3·83. Macgillivray gives the wing at 4·08 with the remark that, that of the female is slightly larger; but Yarrell gives the wing at 3·75, and this latter dimension corresponds exactly with my English specimens. Amongst all my Indian killed specimens, male and female in winter and in summer plumage, only one has a wing above 3·9; in the vast majority the wings are between 3·7 and 3·8, and in a few specimens the wings range between 3·6 and 3·7, and again in a very few, between 3·8 and 3·9. All the birds obtained in Sindh were in winter plumage, one only, killed in the middle of February, exhibits a single feather of the rufous summer plumage near the shoulder of the wing.

* Whence, however, I have true *minuta*.

By the end of May, when I think they leave us, these birds are in full breeding plumage, and at the beginning of September, when we again see them, they have many of them lost but little of the breeding dress.

885.—*Tringa Temminckii*, *Leisler*.

This little species though found throughout Sindh, (as indeed it is throughout the whole of India during the cold season,) is not nearly so common there as the preceding. It is readily distinguished from *minuta*, by the color of its legs and feet which in winter are pale horny green, varying to dusky olive yellow; in summer, olive yellow; while in *minuta*, they are black at all seasons; in winter and summer, respectively, the two or three outer tail feathers on each side in *Temminckii* are pure white, in *minuta*, pale grey brown; then in the winter plumage in *Temminckii*, there is always a broad dusky or grey brown band extending over the whole breast, which in *minuta* is confined to the sides of the breast; there is also the difference in color of the shafts of the primaries which I have already noticed in speaking of *minuta* and *damacensis*. None of our specimens shew the slightest indication of summer plumage; but specimens of this species also, obtained in other parts of India, in May, exhibit the full summer plumage which is, however, much duller and less rufous than that of the corresponding stage in *minuta*.

886.—*Tringa platyrhyncha*, *Temm*.

This species was very common in the Kurrachee Harbour, and along the Mekran and Sindh Coasts. Dr. Jerdon says, that the broad billed stint is tolerably common towards the north of India, rare in the south. To the best of my belief it is exclusively, with us, a maritime species; no ornithologist probably has been so much about the great rivers of Upper India as I have, and I never once saw a specimen in the Central Provinces, Oudh, Behar, the North-Western Provinces, Rajpootana, the Punjab or Sindh above Kotree, nor have I ever met with a specimen in any of the very numerous collections made in these provinces which I have examined.

Till I got to Kurrachee I had never seen the bird alive, and I therefore measured a good number in the flesh; the sexes do not differ appreciably in size. Length, 6·9 to 7·1; expanse, 12·9 to 13·2; tail, 1·3 to 1·8; wing, 4 to 4·2; wings, when closed, reach from 0·2 to 0·3 beyond end of tail; bill at front, 1·15 to 1·35; tarsus, 0·85 to 0·97; weight, 1 to 1·15 oz.

888.—*Calidris arenaria*, *L*.

The sanderling is very common in the Kurrachee Harbour.

Dr. Jerdon says, that he once obtained a specimen on the sea coast at Nellore ; but no other instance of its occurrence in India has been recorded. It wants the hind toe altogether and its bill is somewhat more plover-like than the rest of the stints and snippets, and this has led some ornithologists to unite it with the plovers as an aberrant member of the group. I particularly watched this species as I had never before seen it alive, and I noticed as a fact that it consorted rather with *Ægialitis* than *Tringa*. Very often they were all mixed up together ; but I observed (it was impossible to pick your birds) that I got more sanderlings, with lots consisting chiefly of *Ægialitis* than with others composed chiefly of *Tringas*, and this was also the case with *Strepsilas interpres*. A fine male measured, length, 7·5 ; expanse, 14·7 ; tail from vent, 2 ; wing, 4·7 ; wings, when closed, reached to 0·3 beyond end of tail ; bill at front, 0·93 ; tarsus, 0·92 ; weight, 1·7 oz.

889.—*Phalaropus fulicarius*, L.

I first saw this species when out fishing about two miles outside the Kurrachee Harbour. A small party of about 20, if I remember rightly, swimming about merrily in the open sea. I saw similar parties in various localities, the whole way up the Gulf of Oman, and they are equally common, I was told, in the Persian Gulf. So far as my experience goes they are very wary, rising, *en masse*, and skimming along the surface of the water, for a couple of hundred yards or so, as soon as the boat approaches within a hundred yards of them. With very great difficulty, though I often went after them, I secured a single specimen in the open sea, half way between Gwader and Muscat, and that I dropped out of a flock at fully a hundred yards distance. Mr. Blyth procured a single specimen in the Calcutta market, but it has never yet been recorded by any other observer from India. It is, however, as I ascertained, a regular and well known visitor to the seas that wash the Sindh and Mekran Coasts, and I myself again observed it in the open sea between Kurrachee and Bombay. The specimen I procured was a female. Length to end of tail, 7·9 ; the lower tail coverts project 0·1 beyond the end of tail ; expanse, 13·8 ; tail from vent, 1·7 ; wing, 4·4 ; wings, when closed, reach to the end of tail ; tarsus, 0·82 ; bill at front, 0·92 ; the second quill the longest ; the first, 0·08 and the third, 0·15 shorter than the second.

The bill is black ; irides brown ; the legs and feet, pale plumbeous blue, dusky on claws, joints, and exterior of tarsus.

The lores, forehead, crown, chin, cheeks, front, and sides of the neck, breast, abdomen, vent, lower tail coverts, sides

of the rump, lateral upper tail coverts, and a broad tipping to the secondary greater wing coverts, pure white. A more or less imperfect ring round the eye, and a broad streak from the lower part of the eye over the lower portion of the ear coverts, sooty black. Occiput, back of nape, back and mantle, dull, dusky, blue grey; many of the feathers, especially the scapulars, narrowly margined with white. The rump, central tail coverts, and tail, greyish brown, paler on the lateral tail feathers; quills, blackish brown, white shafted; the posterior secondaries paler, and conspicuously margined with white towards the tips; the greater primary coverts blackish brown; the posterior ones narrowly tipped white; the rest of the coverts more or less dark brown; the greater secondary coverts, as already mentioned, with broad conspicuous white tipplings, a few dull grey streaks on the sides of the body and flanks.

I am by no means certain that this is *fulvicarius*; it is a *Phalaropus*, both by bill and wing, but it does not agree over well with my European specimens, and when more examples are procured, may not improbably have to be separated as *asiaticus*, nobis.

890.—*Lobipes hyperboreus*, L.

I did not myself obtain this species, but subsequent to my leaving Sindh, my friend Mr. E. James, c. s., obtained a specimen in August, in the Kurrachee Harbour, and forwarded it to me. Unfortunately, he noted neither sex, colour of soft parts, date, or measurements in the flesh, but the bird is nearly in breeding plumage. Measuring the *skin*, I find the length about 7.5; wing, 4.25; the *first* primary the longest; the second, 0.06, and the third, 0.3 shorter. Bill at front, 0.83; tarsus, 0.83; bare portion of tibia, 0.47.

The forehead, lores, a narrow streak over the eye, the sides of the head and neck and entire lower parts including the sides of the rump, the axillaries and the major portion of the wing lining, white, except a dark sooty streak from the front of, and under the eye, to the ear. Numerous grey striæ on the sides of the body and flanks; the greater primary lower coverts which are grey, and the smaller lower coverts along the edge of the wing which are pale greyish brown, margined white. A *very* faint refescent tinge at the point of the forehead, and on the base of the neck in front. The crown, occiput, and nape, dull sooty; back of neck, blackish grey, the feathers paling somewhat at the margins; back and scapulars, black, almost velvet black, the feathers more or less broadly margined with rufous

buff. Rump and upper tail coverts, dusky grey, the longest of the latter margined towards the tips with rufous buff; tail, brownish grey; the central feathers darker towards the tips, where they are narrowly margined with buff, the lateral ones similarly margined with white and buffy white. The lesser and median wing coverts dark greyish brown, darkest in the case of the median coverts towards the tips, where they are narrowly margined, with white and pale rufous buff; the greater coverts dark brown, tipped white, those of the secondaries very broadly and conspicuously so. Primaries, dark brown, conspicuously white shafted, all but the first three, *very* narrowly margined with white at the tips; secondaries similarly, but not quite so narrowly margined; white at their bases, the extent of white increasing as the feathers approach the tertiaries, so much so, that the latest are almost wholly white, having only a pale grey brown streak down one web towards the tips. Tertiaries like the scapulars, but paling towards their bases and less broadly margined with rufous buff.

It will be seen that the above description does not correspond over well with that usually given of *L. hyperboreus*.

The bird is clearly a *Lobipes*, with a very slender, pointed, compressed bill, tapering to a point not at all enlarged at the end as in *Phalaropus*. The first quill also is the longest, and not the second as in this latter genus. But the wing lining is white, not grey, nor are the upper tail coverts barred white and grey as in *hyperboreus*, and the marked rufous buff margins of the back, scapulars, and tertiaries, as well as the velvety black of these parts, rather resemble *P. fulicarius*.

Altogether I am by no means certain that when we get more specimens we shall not find grounds for separating our species, when it might stand as *L. tropicus*, nobis, but until I obtain European specimens for comparison, I shall retain the specimen under the Linnean title.

Whether *Hyperboreus*, or a nearly allied but distinct species, there can be little doubt that this is the bird of which Dr. Stewart obtained a single specimen at Madras.

892.—*Totanus ochrophus*, L.

893.—*Tringoides hypoleucos*, L.

Both species were occasionally met with throughout Sindh.

894.—*Totanus canescens*, Gm.—*T. glottis*, L. *apud. auct.*

The green shank was extraordinarily abundant in the great rivers of the Punjab, in large parties of fifty occasionally, and

as they were pretty tame and uncommonly good eating, we shot a good number of them for the pot. In Sindh they were by no means scarce either on the Indus or inland ; but they were in nothing like the numbers in which we noticed them higher up. A male measured in the flesh, length, 13 ; expanse, 24·25 ; tail from vent, 3·4 ; wing, 7·5 ; wing, when closed, reached 0·5 beyond the end of tail ; bill at front, 2·05 ; tarsus, 2·36.

896.—*Totanus fuscus*, L.

Almost equally common with the preceding in the rivers of the Punjab, and common enough in Sindh, especially about the larger lakes, where we occasionally met with enormous flocks of it. Specimens measured, length, 12·9 to 13·3 ; expanse, 21 to 22 ; tail from vent, 2·9 to 3·2 ; wing, 6·5 to 6·9 ; wings when closed, reached exactly to end of tail ; bill at front, 2·3 to 2·4 ; tarsus, 2·3 to 2·4 ; weight, 7·5 to 9 oz.

897.—*Totanus calidris*, L.

I met with this species only on the larger rivers and in the Kurrachee Harbour where it was very abundant. I do not remember ever noticing it on any of the inland waters. A male measured, length, 11·5 ; expanse, 21·35 ; tail from vent, 2·7 ; wing, 6·45 ; wings, when closed, reached to end of tail ; bill at front, 1·7 ; tarsus, 2 ; weight, 6 ozs.

898.—*Himantopus intermedius*, Blyth.

Under this name Mr. Gray separates the Indian stilt, assigning to the European and African bird v. Hasselquist's name *autumnalis* as having priority over *candidus*, Bonn., and *melanopterus*, Flem., the names by which that species is most commonly known. The Australian race he separates as *leucocephalus*, Gould. Personally I suspend my opinion as to the distinctness of these three supposed species ; in the mean time I may mention that be its correct scientific name what it may, our stilt was not uncommon in suitable localities any where in Sindh, though it was less common, than in Upper India.

899.—*Recurvirostra avocetta*, L.

Very common about the larger inland lakes ; at the Munchee lake especially, I noticed it in large parties, certainly a hundred in a single flock. They are very busy active birds, trotting about very rapidly with their whole bill immersed in the water, moving their heads from side to side as they trot along and reminding one very much in their actions of the spoonbill.

901.—Hydrophasianus chirurgus, Scop.

We met with this on several of the larger inland lakes, but nowhere in any considerable numbers. All the birds we saw were of course in winter plumage.

902.—Porphyrio neglectus, Schl.—*P. poliocephalus*, Latham, apud Jerdon.

In some of the rush over-grown lakes of Sindh, the purple coot is excessively abundant; unlike the common coot, and water hens, they seem scarcely ever to shew themselves outside the reeds, but when pushing through these in a boat, they rise continually all about you, floundering up above the tops of the rushes with a flapping noisy flight like that of a pea-fowl, and, never rising more than a few yards in the air, again drop at once after a short flight into some reedy thicket. The bird when alive is certainly very beautiful; but in the skins not only the color of bill and feet, but of the whole plumage fades so much, that little trace of its natural beauty remains; its eggs which I have described elsewhere, are also when fresh amongst the most beautiful that I know; but they too alas, fade equally.

Gray assigns Latham's name to the Sultana coot of the Philippines and Madagascar? I confess that if the birds from both these localities are identical, it is difficult, *prima facie*, to believe that *ours* are distinct.

903.—Fulica atra, L.

Numerous as these birds are in our Norfolk broads where about the commencement of the winter, they afford one or two days grand fun, this is nothing to the multitudes that swarm on the great inland broads of Sindh. On the Muncher lake I believe they would have to be counted not by thousands but by hundreds of thousands; a square mile of water may be seen perfectly black with water-fowl, and although ducks of various descriptions do seem innumerable, they form scarcely one-tenth of the floating herd, the great bulk of which consists of coots. When a shot is fired near to them and they rise, the noise of their wings, and of their feet striking the water, is like the roar of the sea upon a shingly beach. You can shoot nothing without knocking over some of these wretched coots. During the days I was at the Muncher lake, I never once fired at one, and yet I daily killed between twenty and thirty accidentally in shooting at ducks. In no part of the world have I ever seen such incredible multitudes of coots as are met with in Sindh; in the Muncher lake *par excellence*, but also in many others of the larger inland pieces of water.

905.—*Gallinula chloropus*, L.

The water-hen abounds in every swamp and broad in Sindh. I shot some almost daily, expecting to get Blyth's *G. Burnesi*, especially at the Muncher lake, whence the type specimen was sent. I have killed and examined many specimens; but all I met with were referable to the European species. I begin to have strong doubts as to whether *G. Burnesi* is not merely the immature *chloropus*. In his original description Mr. Blyth remarks: "The outer web of the first primary is white and the outermost feather of the winglet is also bordered with white." As a matter of fact, however, this is often the case in *G. chloropus*, so that these two characteristics cannot certainly be depended upon for discriminating the two species if they really exist. I have two specimens one killed at Syree, below Simla, the other at Erinpoorah, in Rajpootana, which undoubtedly represent *G. Burnesi*, and supposing this latter to be really a distinct species (and neither of my birds, *prima facie*, appear to be immature) the features by which it can be most readily distinguished are *first*, its much smaller size, *second*, almost entire absence of frontal plate; *third*, far smaller development of the lateral membrane of the toes; *fourth*, entirely white chin, and throat; *fifth*, brown head, nape, and neck almost unicolorous with the back. The dimensions of *Burnesi* and *chloropus* males and females, were as follows:

	BURNESI.		CHLOROPUS.	
	Male.	Female.	Male.	Female.
Length	... 11.5	11	13.25	12.3
Expanse	... 19	18	22.25	20.25
Wing	... 6	6.2	6.9	6.6
Tail from vent	... 2.4	2.3	3.1	2.5
Tarsus	... 1.65	1.75	2	1.9
Mid toe to root of claw	} 1.9	2.1	2.4	2.3
Bill straight to front including frontal plate				
	1.18	1.15	1.35	1.14

These birds were all killed in the autumn or cold season, and all measured in the flesh; but the question has more than once suggested itself to me whether after all *Burnesi* may not merely be the quite young bird of *chloropus*, and I hope some one who has an opportunity of obtaining these birds soon after they leave the nest, will kindly secure and send me specimens. My Syree bird was obtained on the 10th August, that from Erinpoorah on the 12th October.

907.—Porzana phoenicura, Penn.

I did not myself meet with this species, but Mr. James, c. s. kindly sent me a specimen which he had procured in January on the Barra canal, with the remark that though he never saw it elsewhere, the men who were with him, told him it was common.

909.—Porzana maruetta, Bris.—*Rallus porzana*, L.

A single specimen of this rail was shot for me in the Roree district by Dr. Day. We never happened to come across it again, but sportsmen to whom I shewed the skin, informed me that it was not uncommonly met with in tamarisk thickets in, and on the edges of, swamps when beating for snipe.

910 bis.—Porzana minuta, Pall ;—*P. pusilla*, Gmelin.

The little rail is very abundant in Sindh. In some of the inland pieces of water, that at Dost Alli for instance, a dozen may be seen at the same time, busy feeding, running on the lotus leaves, or again swimming rapidly from leaf to leaf. Baillon's crake, (*P. pygmaea*,) I never once met with in Sindh; but I have it from near Simla, up to a height of 4,000 feet, from Etawah, Sirsa near Delhi, Raipoor, Dacca, and Tipperah, from none of which I have seen *minuta*. In fact until I went to Sindh, I never met with this latter bird in India, and Dr. Jerdon does not include it in the birds of India. *Pygmaea* breeds in the North-Western Provinces at any rate, as Mr. Brooks and I took one nest containing three eggs in the Etawah district, and *minuta* breeds, as the boatmen told me, regularly in Sindh.

Pygmaea may always be distinguished at a glance from *minuta* by its smaller size, shorter, and in proportion deeper bill, and by having the back, scapulars, and greater wing coverts all more or less profusely variegated with bluish white, whereas in *minuta*, the white markings which are somewhat broader and of a somewhat purer white, are confined as a rule to the centre of the back, though occasionally some of the longer scapulars are also faintly edged with bluish white. In *minuta* the wing varies from 3·75 to 4·1; the bill at front, from 0·7 to 0·76; in *pygmaea*, the wing varies from about 3·45 to 3·62; and the bill 0·6 to 0·62.

A male of *P. minuta* was, length, 8·2; expanse, 12·5; tail from vent, 2·25; and weighed 1·7 oz. In the males, the lower surface is a grey blue, in the females, a light rufous buff.

915.—*Leptoptilus dubius*, Gm.—*L. argala*, Lath.

I myself never saw this species in Sindh, but Mr. Watson informed me that it was not uncommon at times in the Rooree Sub-Division where there was water. Mr. James, c. s., observed it once on the Indus, in Upper Sindh, in November, and it is occasionally seen both in Upper and Lower Sindh, soon after the inundation subsides.

917.—*Mycteria indica*, Lath.—*M. australis*, Lath. *apud Jerdon*.

I only very seldom saw this fine stork in Sindh; higher up in the Punjab, I often saw it along the banks of the larger rivers.

Mr. Gray considers the Indian race specifically distinct from the Australian, and as he had specimens of both to compare, and I have not, I have, though doubtingly, followed him.

918.—*Melanopelargus nigra*, L.

The black stork which, except in the districts lying immediately below the hills, is a comparatively rare bird in the North-Western and Central Provinces, and Cis-Sutlej Punjab, occurs in vast numbers, in flocks of several hundreds, everywhere along the banks of the Jhelum, the Chenab, and the Indus in the Punjab, and along those of the Indus in Sindh. Inland too, in Sindh, I met with it on several occasions, and I shot a fine specimen out of a party of four or five on the banks of the Gaj just inside the hills. On the river banks this species is so excessively wary that numerous as it is, it is difficult to procure a specimen; it is scarcely possible to get within even rifle shot of them, and at three or four hundred yards distance, I found them uncommonly hard to hit, and I only secured one this way, and that too was not the bird I fired at. I measured a pair, male and female, in the flesh; the following were their dimensions:

Male, length, 44; expanse, 78; tail from vent, 9; wing, 22; wings, when closed, reached exactly to end of tail; tarsus, 8.75; bill at front, 7.5; foot greatest length, 5.75; width, 6; weight, 9 lbs.

Female, length, 39.6; expanse, 77; tail from vent, 8.75; wing, 20.25; bill at front, 6.8; tarsus, 7.8; weight, 7.25 lbs.

919.—*Ciconia alba*, L.

I only once saw this species inland in Upper Sindh, a small party of about twenty feeding in a nearly dry swamp, but on the Indus it seemed more common.

923.—*Ardea cinerea*, L.

The common heron swarms in Sindh: it is one of the birds which the professional fishermen, mahanahs as they are called, capture in large numbers, partly for food, and partly to make use of as decoys to other water-fowl. About every fisherman's village hundreds may be seen, perched about on the boats, on stacks of brushwood thrown into the water, and on poles, perfectly motionless, and more like stuffed than living birds. The eyelids of all are sewn up; they dare not move, poor things, and wherever they are placed for the day, there they remain immovable. Generally they are lightly tethered by one leg, but I saw several, perhaps old prisoners, in no way tied. Now and again they run their bills along their feathers, or flap their wings feebly, but as a rule they all stand like statues. The people feed them liberally, and say they grow very fat in confinement, and obviously appreciate them as much as an article of diet, as our ancestors appear to have done. Sometimes these birds get loose, or being loose, take it into their heads to fly. I myself saw a bird get loose in this way and then it mounted in short circles straight up into the sky until we entirely lost sight of it, and this the boatmen assured me was what invariably happened in similar cases. What eventually comes of these, no one seems to know; of course they must ultimately drop exhausted to the ground, but probably at great distances from where they started, for the fishermen say that never, by any chance, do they again see a bird that thus escapes.

924.—*Ardea purpurea*, L.

We never happened to meet with this, but Captain Malden informed me that it was common along the banks of the Indus.

925.—*Herodias alba*, L.**926.—*Herodias intermedia*, v. *Hasselq.*—*H. egrettoides*, Tem.****927.—*Herodias garzetta*, L.**

All three species were met with in vast numbers at all the larger inland waters of Sindh; *alba* and *intermedia* are quite as commonly captured and kept by the fowlers and fishers, about their reed huts and boats, as *cinerea*. Such Noah's arks as these boats often are; you will see one about 20 feet long and six wide at the outside, with a small thatch over the central portion, which will contain, a man and his wife, an old man,

some relative, six children, two pelicans, six or eight herons, grey and white, a couple of cormorants, a kid, a dog, and otter spears, nets, lines, hooks, and the like of all descriptions. In such a menagerie the mahanahs will live for months, cooking, eating, sleeping, in fact living wholly in this one boat, though doubtless generally landing daily for an hour or so, to exchange their surplus fish. At other seasons or in other places, they put up tiny reed huts by the water's edge, and live in these instead of in their boats.

928.—*Demiegretta gularis*, Bosc, *Actes Soc. d'hist. Nat.*, I. p. 4, tab. 2;—*A. albicollis*, Vieillot.—*A. schistacea*, Lichtenstein.—*A. asha*, Sykes.

Professor Schlegel and Mr. Gray are certainly wrong in uniting *asha*, Sykes, with *jugularis*, Forster; they are probably right in considering *concolor*, Blyth, as identical with this latter; but *asha* of Sykes is *gularis*, and not *jugularis*. The fact is there are two nearly allied species, the one occurs along the eastern and north-eastern coast of Africa up to Suez down the Arabian Coast, and has now been observed by me at Muscat, along the Mekran Coast, and at Kurrachee, and again on the Bombay Coast at Teetul, near Bulsar; and Dr. Jerdon's description shows clearly that this is the bird which he and Sykes found down the western coast of India. This is *gularis*; on the other hand, the second species is found in New Zealand, Australia, throughout the Indian Archipelago, and I have reason to believe, though I have no specimens with me to compare, throughout Burma, up to Ramree Island, in the Nicobars and Andamans, and possibly on the eastern shores of the Bay of Bengal. This latter is *jugularis*, Forster; *pannosa*, Gould; *concolor*, Blyth; and probably *sacra*, Gmelin, the name by which it should according to Mr. Gray stand. Both species are typically, when adult, deep slaty blue, becoming more or less black in old birds; both seem to have an allotropic white form, which is not necessarily the young, these having been taken from the nest of the same dark color as the typical adult, and both have a light slaty grey stage, which appears to me to indicate immaturity, in which a good deal of the centre of the abdomen, vent, and lower tail coverts are white.

The two species differ in these respects. *Gularis* has the whole chin, throat, and sides of the head nearly to the gape, and quite to the base of the ear coverts, white; *jugularis* or *sacra* has only a narrow white stripe down the centre of the throat; *gularis* is a somewhat larger bird, has the bill in adults from 3·5 to 4·1, against a bill of 3·1 to 3·4 in *jugularis*; a tarsus of from 3·9 to

4.4 against a tarsus of from 3.8 to 4.1 in *jugularis*; a mid toe to root of claw of from 2.3 to 2.6, against a mid toe in *jugularis* of from 2 to 2.2; lastly, *gularis* has the bare portion of the tibia from 2.2 to 2.9; against a bare portion in *jugularis* vel *sacra*, of from 1.2 to 1.5.

A very great deal remains to be ascertained in regard to the changes of plumage of both these species, and it is possible that *jugularis* or *sacra* may be found to include two species, but *gularis* and *jugularis* are clearly distinct and can be separated at once, as above explained, and our Western Indian bird is unmistakably *gularis*, and *demiegretta asha*, Sykes, is equally, certainly identical with it, and not with *jugularis* as Schlegel and Gray give it,

Our present species is excessively abundant in the Kurrachee Harbour where it may be seen at all times feeding (as a rule solitary) on the edges of the mud flats, or standing motionless a few yards off the water's edge. Occasionally, but more rarely, it is found perched on the mangrove bushes; as a rule it is somewhat wary; but at times will allow of an easy shot. This same species is, I ascertained, very common about the mouths of the Indus in all the innumerable creeks and water-courses that there abound. Along the Mekran Coast we saw it occasionally, and I procured a fine adult at Gwader, and again saw others in some of the bays along the Coast near Muscat.

I measured several in the flesh and give the dimensions thus obtained, noting that the paler grey birds, with a good deal of white about the abdomen and vent, and occasionally on the centre of the breast also, are always smaller, and always want the occipital and pectoral plumes, and are in my opinion unquestionably the birds of the year.

Length, 24.25 to 27.5; expanse, 38 to 42; tail from vent, 3 to 3.8; wing, 10 to 11.4; wings, when closed, reach to end of tail, or even to 0.5 beyond it; bill at front, 3.6 to 4.1; tarsus, 3.6 to 4.4; mid toe to root of claw, 2.3 to 2.6; bare portion of tibia, 2.2 to 2.9; weight, 1 lb. to 1 lb. 4 oz.

The irides vary from bright yellow to yellowish white; the bill is yellow, brownish or dusky on culmen; the legs and feet are very variable, in one the feet and terminal two-fifths of tarsi were yellowish green, the front of the upper three-fifths of tarsus, and of tibia black, the posterior portion of tarsus dusky orange; in another the whole legs and feet were greenish yellow, with only the front of both tarsi and tibiæ, black; another had the whole of the legs black, only the feet greenish yellow.

929.—*Bubulcus coromandus*, Bodd.**930.—*Ardeola Grayii*, Sylkes.**

Both species very common, throughout the province, wherever there was water.

931.—*Butorides javanicus*, Horsf.

The little green bittern was not uncommon on the banks of canals and watercourses, skulking under or within heaps of brushwood or the branches of some half immersed tree during the major portion of the day, emerging and stalking slowly along the bank and close to the water as day declined. I believe that this species is very common in Sindh, but only in the localities I have indicated. I never met with it in any of the swamps or lakes.

935.—*Ardetta minuta*, L.

I obtained a single specimen of this species, which I have never before known to occur in India out of the Himalayas (it is very abundant in Cashmere and I have obtained it at Syree below Simla) in a large broad at Dost Alli near Larkhana. I was beating a clump of reed rush and tamarisk, a little island in fact of these for Cetti's warbler; coots, and water-hens innumerable had been driven out, when I observed this queer little heron creeping about from bough to bough near the bases of the tamarisk bushes, and shot it. I never saw a second specimen; but if it always keeps as close in the day time as this bird did, this is not to be wondered at, since after I had secured a certain number of specimens of Cetti's warbler, I never again attempted to beat these thickets.

936.—*Botaurus stellaris*, L.

The bittern which, in Upper India at any rate, is a decidedly rare bird, was very abundant in Upper Sindh, and in one fortnight about the Shikarpore Collectorate, I certainly saw more specimens than I had ever seen in my whole life before.

937.—*Nyctiardea nycticorax*, L.

The night heron was often seen; rarely in the day time unless disturbed, generally towards evening, flying overhead to its feeding grounds, uttering its characteristic harsh croak. A male measured, length, 24; expanse, 43·5; tail from vent, 4·6; wing, 11·5; wings, when closed, reached to within 0·4 of end of tail; bill at front, 3; tarsus, 3.

939.—*Platelea leucorodia*, L.

Alike along the banks and sandbanks of all the greater rivers

of the Punjab, and of the Indus in Sindh, the spoonbill was repeatedly met with in large flocks. In the broads and lakes it was, I think, comparatively infrequent.

The bills in this species vary very materially in length even in the same sex; amongst the males, for instance, they vary from 8·2 to 9·7.

A male that I measured in the flesh, by no means a particularly large bird, gave the following dimensions, length, 33·25; expanse, 58; tail from vent, 5; wing, 15·3; wings, when closed, reached to within 0·8 of end of tail; bill at front, only 8·4; tarsus, 6·2; the irides were reddish yellow.

941.—Threskiornis melanocephalus, L.

942.—Geronticus papillosus, Tem.

Both species abundant, in suitable localities, throughout Sindh.

943.—Falcinellus igneus, Gm.

The glossy ibis occurred in huge flocks in and about many of the large inland lakes of Upper Sindh; but I never met with it in Lower Sindh. We got it in every stage from the quite young bird, with a bill of about 3·75, and without a vestige of ruddy tint below or of purple reflections above, to the old bird in full breeding plumage, with a bill over 5·5 in length. It was excessively tame and sat on the trees and bushes overhanging the water or fed fearlessly in amongst the rush and reeds till the boats were within 20 yards of it. It is impossible to explain these things, but the fishermen who eat and relish every description of paddy-bird consider the glossy ibis very indifferent eating, whereas *some* Europeans at any rate who will not look at a paddy-bird consider the ibis a dish worthy of an epicure. In the Jumna and Ganges, many races of fishermen will not touch fish so long as crocodile is to be got; and an old friend of mine who was persuaded to try it, said that crocodile bore the same relation to fish that pork does to mutton, and was highly commendable as an article of diet; but really *de gustibus, &c.*

944.—Phoenicopterus roseus, Pall.—P. antiquorum, Tem.

How shall I describe the countless myriads of flamingoes that are seen either massed upon the water, huge rosy islands, or floating above it like a sun-set cloud in all the larger lakes of Sindh? Elsewhere I have seen flamingoes in flocks of several hundreds, here they were in tens of thousands. It is a wonder-

ful sight to see one of these enormous flocks rise suddenly when alarmed; as you approach them, so long as they remain in the water at rest, they look simply like a mass of faintly rosy snow. A rifle is fired, and then the exposure of the upper and under coverts of the wing turns the mass into a gigantic, brilliantly rosy, scarf, waving to and fro in mighty folds, as it floats away.

The flamingoe I found swims rapidly and well. A winged bird which fell in deep water kept well a-head of our primitive native punt, and was only secured, when after fully half a mile's swim, the bird began to be exhausted. It did not swim like a swan, with the neck bent backwards over the back, but with the neck nearly straight, and bent slightly forwards, jerking at every stroke, apparently, of its feet, looking in fact as if it was staggering along hurriedly in water, just reaching up to its breast, but the water was really 10 or 12 feet deep, so that if its mode of progression could not fairly be called swimming, it was at any rate "treading water."

944 bis.—*Phœnicopterus minor*, Geoffr. St. Hil.

I have already (Stray Feathers, p. 31 *ante*) said all I have to say about this species. I did not myself meet with it in Sindh; but the fishermen are well acquainted with it and described it by its smaller size and brilliant rosy hue, in such a manner as to leave no possibility of a doubt as to its identity.

945.—*Anser cinereus*, Meyer.

The grey lag goose was excessively abundant along all the greater rivers of the Punjab; but least so on the Indus in Sindh. We met with it, but comparatively rarely, in the neighbourhood of lakes, and once or twice feeding in the fields. It is not near so common in Sindh as in many parts of the North-Western Provinces. Dr. Jerdon gives the expanse at 54, but this really varies from about 60 to 65. The bean goose (*Anser segetum*) is said to occur in India, but I have never been fortunate enough to meet with a specimen, or to meet with any one else who had. It is nearly the same size as the grey lag goose, but may be distinguished at once, by having the nail, edges, and base of the bill blackish, while in the grey goose these parts are pink and greyish white; by having the whole legs and feet orange, these being in the grey lag dull fleshy or occasionally pale creamy pink; by having all the wing coverts greyish brown, while in the grey lag the upper and median, and the whole shoulder of the wing are a light grey. I should be very glad to receive authentic information of the occurrence of the bean goose in India. *Anser brachyrhynchus*, Baillon, is another goose very rare in India. I have only seen two Indian killed specimens of

this which I myself shot in the Jumna in Etawah. It is very like the bean goose, but has the legs and feet pink tinged with vermilion, and is smaller, being about 28 inches in length to 30 inches in the bean goose. The bill is only 2 inches in length against nearly 2·4 in the bean goose, and the central portion of the bill is bright carmine instead of yellowish orange as in the bean goose. This is another species easily verified, and I hope some of our numerous contributors will endeavour to find out something more about the occurrence of this species in India.

947.—Anser erythropus, Flemming.—*A. erythropus*, Linn. nec. Gmel.—*A. albifrons*. Gmelin, &c.

The white fronted goose is very rare in India. For the first time in my life I saw and shot three specimens in the river Jhelum below Shahpoor, and I again saw a pair in the Indus, between Sehwan and Kotree. No where else did I observe them during the trip, though their small size, and very brown appearance, renders them easily recognizable at long distances with the help of binoculars. In neither cases were they associated with other water fowl. In one case the three, in the other the pair, were seated at the water's edge on the river's bank with no other birds of any kind near them. The three specimens I obtained varied a good deal; the one which appears to be an adult male has the whole chin white, as is also the broad band on the forehead and on each side of the upper mandible. The female has only one single feather white at the point of the chin, and the white band at each side of the upper mandible is much narrower; the third, also a female, but as I take it a young one, has the head, and neck much paler brown, no white at all on the chin, and the band both on the forehead and at the sides of the upper mandible very narrow. The lower surface, too, varies very much; in one it is pale greyish white with a few black mottled patches on the abdomen; in another, the mottled patches are so numerous and large, that the black decidedly preponderates over the greyish white; in one specimen which I have from Oudh, the white frontal band is 1·15 broad; in the adult male above mentioned, it is 0·85 broad; in the adult female it is 0·6, and in the young female only 0·3. In all these it is a band stretching straight across the whole forehead, not running up on to the crown in a broad longitudinal band as it does in a *minutus* Naumann, which latter by the way, and not the present species, is according to Newton (I suspend my own opinion) the *erythropus* of Linncæus.

The dimensions of my three birds, measured in the flesh, were as follows: length, 26 to 27·75; expanse, 52 to 55·5; tail

from vent, 5·2 to 6; wings, 15 to 15·75; wings, when closed, reached exactly to the end of tail; bill, at front, including nail, 1·7 to 1·75; tarsus, 2·45 to 2·75; weight, 4lb 5 oz. to 5lb 2 oz.; legs and feet, bright orange; nails, pinky or greyish white; bill pale livid fleshy, in one tinged orange on the culmen, in another similarly tinged on the nares and base of lower mandible; nail whitish or pale yellowish white; irides pale brown.

949.—*Anser indicus*, Gmelin.

This species was much *more* plentiful in the rivers of the Punjab than the grey lag; but in Sindh, both on the Indus and inland, it was decidedly less numerous.

A female measured, length, 27·25; expanse, 56; tail from vent, 6; wing, 16·3; wings, when closed, reached 0·6 beyond end of tail; bill, at front, including nail, 1·75; tarsus, 2·8; weight, 4 lb. 12 ozs.; legs and feet, pale orange; claws brown; bill, pale lemon yellow; nail, black; irides, brown.

952.—*Dendrocygna arcuata*, Cuv.

This species appeared to me to be far from common in Sindh during the cold weather, and though mentioned to me as often met with during the inundation, *we* only once saw it.

954.—*Casarca rutila*, Pall.

The brahminy duck was very abundant on all the larger rivers of the Punjab, on the Indus, and the inland waters of Sindh. We often saw fifty in a single day. The numbers of this species that yearly visit India are scarcely less astounding than those of the bar fronted goose. Of both species, a vast proportion, at any rate, breed in the higher plateaux of the Himalayas (not under an elevation of twelve or thirteen thousand feet) in the neighbourhood of the many lakes and pools which these enclose.

956.—*Tadorna cornuta*, Gm.—*T. vulpanser*, Flem.

The shieldrake I only noticed about the Munchee lake, where numbers were feeding along the banks on the northern and western shores. They were very wary, and though I stalked many of them and got within a hundred and a hundred and fifty yards, I failed to secure a specimen. In Upper India, in similar large inland pieces of water, as low down as Cawnpore and Fyzabad, a few are generally to be seen during the cold season.

957.—*Spatula clypeata*, L.

I saw the shoveller daily all along the banks of the Jhelum, the Chenab, and the Indus, and again on all the inland lakes of Sindh. They are not worth eating, and though the male but

for his clumsy bill would be handsome, I think we must put them down, on the whole, in the "cheap and nasty" category.

958.—*Anas boschas*, L.

In the North-Western Provinces, compared with other ducks, the mallard is scarce and so it is in the Punjab Cis-Sutlej; but, as you proceed further west, its numbers increase, and all down the Jhelum, and the Chenab from Jhelum to Mooltan, it is out-and-out the commonest duck. I killed from a dozen to twenty daily, and might easily have killed double that number. They were comparatively speaking very tame, and I used to drift down to them in a little boat to within thirty or forty yards, as they sat in small parties asleep at the water's edge, bagging two or three as they sat, and knocking over one and sometimes two more as they rose with the second barrel. In the Indus, too, they were equally abundant but more wary, as people continually shoot at them from the steamers, and in most of the larger inland waters of Sindh, I met with them in great numbers. At first starting, the mallard lies better, and affords better sport than any of the other ducks, and when you first go on to a broad that has not previously been shot that season, the mallard keep continually rising pretty close to the boat from under the boughs of water-surrounded tamarisk trees, and clumps of rush, affording beautiful shots.

959.—*Anas poekilorhyncha*, Gmel.

Pretty common, but much less so than the last species, though found in the same localities.

961.—*Chaulelasmus streperus*, L.

The gadwall was found in much the same places as the two last. It was much commoner everywhere than *poekilorhyncha* and more common than the mallard in all lakes, in fact on the whole perhaps the most common duck on these, but it was decidedly less common on the rivers.

962.—*Dafila acuta*, L.

I never met with this in any of the rivers, but on many of the lakes it abounded. It has a habit of sitting in parties in amongst low water plants, with nothing but its long white neck showing, and when basking thus, will often permit a tolerably near approach.

963.—*Mareca penelope*, L.

I saw very few of the widgeon in Sindh as a whole, and none on the rivers, but in the Muncher lake they were in hundreds,

and during the few days we were there, very considerable numbers were killed.

964.—*Querquedula crecca*, L.

Common enough everywhere, alike on the rivers and the lakes.

965.—*Querquedula circia*, L.

The garganey must, I think, be rare in Sindh during the cold season, for I never chanced to see it, nor did any of us obtain a specimen; I have however since received one, killed at the close of the inundation, and at that season I understand they come in, in large flocks.

966 *bis*.—*Querquedula Angustirostris*, Mé- nétries.—*Q. marmorata*, Tem.

The marbled duck, a species not included by Dr. Jerdon in the Birds of India, was singularly abundant in suitable localities in Sindh, and I have also heard of its being killed in Guzerat. In Sindh where I had abundant opportunities of observing it, I found it invariably associated in large parties; its favorite haunts are broads, thickly grown with rush, in which it feeds and sports, comparatively seldom shewing itself in the open water. As a rule it does not at once rise when guns are fired as the other ducks do, but, if at the outside of the rush, scuttles into these for concealment, as a coot would do, and if in them already, remains there perfectly quiet until the boats push within 60 or 70 yards of it; then it rises, generally one at a time, and even though fired at, not unfrequently again drops into the rush within a couple of hundred yards. When there has been a good deal of shooting on a lake, and almost all the other ducks and with them of course *some* of these are circling round and round high in the air, you still keep, as you push through the reeds and rushes, continually flushing the marbled duck, and the broad must be small, or the hunting very close and long continued, to induce all the marbled ducks to take wing. Of course where there is little cover (though there you never meet with this duck in large numbers) they rise and fly about with the other ducks; but their tendency in these respects is rather coot-like than duck-like. Individuals may take wing at the first near shot, but the great majority of them stick to the rush as long as this is possible, and on two occasions I saw very pretty shooting, boats in line pushing up a wide extent of rush-grown water, and the marbled duck rising every minute in front of us at distances of 60 or 70 yards, like partridges out of some of our great Norfolk turnip

fields; here and there a shoveller, or a white-eyed duck, both of which, when disturbed, cling a good deal to cover, would be flushed; but there were not one of these to ten of the marbled duck. This species is not amongst first-class ducks for the table; it ranks with the shoveller and the white-eyed duck, and after obtaining a goodly array of specimens, we never shot it, first class ducks, gadwal, mallard, and pin-tail, as well as the Indian canvas back (*aythya ferina*) being always available.

The *dimensions* of this species are as follow: Male, length, 18.3 to 19; expanse, 28.5 to 29.5; tail from vent, 3.6 to 4; wing, 8.1 to 8.5; wings, when closed, reach to within 0.7 to 1.5 of end of tail; bill at front, including nail, 1.77 to 1.85; tarsus, 1.44 to 1.52; weight, 1 lb. 3 oz. to 1 lb. 5 oz. Female, length, 16.9 to 17.5; expanse, 27 to 28; tail from vent, 2.8 to 3.7; wing, 7.9 to 8.1; wings, when closed, reach to within from 0.5 to 1 of end of tail; bill at front, 0.6 to 0.75; tarsus, 1.4 to 1.5; weight, 1 lb. to 1 lb. 3 oz.

Description.—The legs and feet are dusky olive or dark horny brown, with the claws and webs black; or horny green, with the claws and webs dark grey; the bill bluish grey, black on culmen and tip, or dusky, bounded at the margins of the feathers of the forehead and cheeks with a pale, leaden blue line, continued along the margin of both mandibles to near the tip, and a spot of the same color just above the nail; the irides are brown.

Plumage.—The male has the forehead, crown, occiput, and nape brownish white, with numerous narrow, close-set, wavy, irregular, dark brown bars, which become more speckly on the occiput, where also the ground colour is a more rufescent brown. Feathers immediately round the eye, very dark brown; a broad irregular stripe over the eye, and a large patch on the side of the head behind the eyes, moderately dark brown, shading into the very dark brown immediately surrounding the eyes; the whole space between the sides of the upper mandible and the dark feathers surrounding the eye, the whole sides of the head below the dark eye and ear-patch, the whole chin, throat, and front of the neck, slightly greyish, or brownish white, very narrowly, regularly and closely streaked with brown. The lower parts, a slightly brownish white; the breast feathers with greyish brown subterminal transverse bars, mostly more or less concealed by the pale tippings of the superincumbent feathers, and only clearly seen when the feathers are lifted; the sides and flanks similar, but the subterminal bars much broader and some of the flank feathers with several bars; the vent feathers and lower tail coverts, generally, with a slightly more rufescent tinge,

and with two or more narrow, widely-separated, transverse brown bars. The tibial plumes browner, and with numerous narrow closely set, but ill-marked, transverse brown bars; the abdomen more or less obsoletely mottled with very pale grey brown, which on lifting the feathers is found to arise from more or less faint, irregular, transverse, subterminal, brownish bars.

The barrings above described are very much more marked in some specimens than in others, in some in fact on the abdomen they are almost entirely obsolete, and can hardly be traced.

The upper back, greyish brown, the feathers with a subterminal richer brown bar; the scapulars brown, with a yellowish white terminal spot, and of a much richer brown, the longer ones especially, just above the spot; the tertiaries and secondary greater coverts are greyish brown, the former obsoletely barred paler; the secondaries are pale grey; the primaries, their greater coverts, and the winglet, pale slaty, the primaries with a silver-grey tinge on the outer webs towards the tips; the inner webs, pale grey brown, except towards the tips where they are much darker and where the shafts also are conspicuously darker. The middle back, rump, and upper tail coverts, the same grey brown as the upper part of the back; the feathers of the middle back narrowly and obscurely tipped with yellowish white, those of the rump and upper tail coverts more broadly and conspicuously so, and with a subterminal dark brown spot; the longest of the upper tail coverts, are very broadly and conspicuously so tipped, and have a subterminal dark band. The tail feathers, pale grey brown, broadly tipped, and narrowly margined with yellowish white; the two central tail feathers darker on the inner webs and dark shafted, and the lateral tail feathers paling as they recede from the centre.

The female is similar, but smaller, with the eye patch and generally all the markings and tints duller and less conspicuous.

967.—*Fuligula rufigula*, Pall.

The red-crested pochard was but seldom seen on any of the large rivers, neither did I observe it in any of the smaller inland pieces of water; but at the Muncher lake and some few others of the larger broads it occurred in considerable flocks.

968.—*Aythya ferina*, L.

I only met with this duck on some of the broads, but where it did occur, it occurred in incredible numbers; at the Madho jheel it out-numbered all the rest of the water-fowl put together, tens of thousands were congregated together. It was generally in lakes possessing a considerable breadth of open

water that the red-headed pochard was found.

969.—*Aythya nyroca*, *Güld.*

The white-eyed pochard on the other hand which was met with in every inland piece of water, big or little, (but never in the rivers), specially delights in rushy, reedy waters, and when alarmed, like the marbled duck, rather seeks safety in cover, than in flight. It is very indifferent eating, and it *may* be a cognizance of this fact, and that sportsmen generally disdain its slaughter, that leads it to remain tranquilly in amongst the rushes while heavy firing is going on all round, often not taking the trouble to rise till the boat is within twenty yards of it. Anyhow this is the fact, and I have seen as many as thirty or forty rise singly one after the other, all within easy shot, in a couple of hours punting through the rushes. The boatmen say that this duck breeds in Sindh, it may do so (in Cashmere its eggs are so plentiful, that at one season they constitute an important staple of trade at Srinugger) but the fact requires verification.

971.—*Fulix cristata*, *L.*

The tufted pochard was less common than any of the preceding, the only locality in which I saw it, in any considerable numbers was on the Muncher lake.

973.—*Mergellus albellus*, *L.*

The smew was as rare in Sindh as it is elsewhere in Upper India. I saw one party on the banks of the Jhelum near Jung and shot a specimen, a young male, and I saw it again on the banks of the Indus near Kussmore, and lastly, I saw several parties on the Muncher lake. These were the only occasions on which I met with it, though the black and white plumage of the male is so conspicuous, that the bird can never be overlooked.

974.—*Podiceps cristatus*, *L.*

This species is very rare inland in Sindh. I only saw it once and then on the Muncher lake; but in the sea outside the Kurrachee Harbour, and as I ascertained along the coast to Kutch, especially about the mouths of the Indus and again all the way up the Mekran Coast, and notably in both the Gwader bays, it is excessively abundant, though not easy to procure, and the specimens I shot cost me many hours delightful, but still hard work.

Three males measured, gave the following results:

Length, 20·75 to 24; expanse, 30·5 to 35; wing, 7·1 to 7·8; wings, when closed, reach to within 2 of end of tail; bill at

front, 1.9 to 2.1; tarsus, 2.25 to 2.45; weight, 2 lbs. 10 ozs. to 3 lbs. 8 ozs. A female measured, length, 19.75; expanse, 31; wing, 7.2; bill at front, 1.65; tarsus, 2.2; weight, 2.4 ozs.

The irides were red to bright red; the bill from fleshy red to bright pink, brownish on the culmen at base, and at base of lower mandible; the legs and feet varied from blackish brown to dusky plumbeous exteriorly, and interiorly from creamy, to dingy yellow, somewhat dusky on the joints. Some of the birds were entirely in winter plumage, with no trace of rufous or a ruff about them; others had the whole head rufous with the black ruff band well developed, and a great deal of rufous mingled with the upper plumage.

974 bis.—*Podiceps nigricollis*, Sundevall.

Colymbus auritus var. B. Linn. S. N. t. i., p. 222.—*Briss Ornith. t. vi, p. 55.*—*Lath. Ind. Orn. t. ii, p. 781.*—*Podiceps nigricollis*, Sund. *Ofvers. Kongl. Velesnk. Akad. (1844) p. 210.*

I believe that opinions are still divided as to whether *nigricollis* really merits specific separation from *auritus*. The two species are certainly very closely allied; but differ, I think, both in certain details of coloration and in shape of bill sufficiently to justify their separation.

Our birds, though somewhat exceeding the dimensions usually assigned to Sundevall's species, belong clearly to the *nigricollis*, and not the *auritus* division. The adults have the whole neck in front blackish, and not merely the upper portion as in restricted *auritus*. The beak is entirely black without any ruddy tinge towards the top or at the base; the upper mandible is markedly depressed towards the middle, and raised towards the tip, while it is decidedly broader than it is high behind the nasal grooves, whereas in *auritus*, it is higher than wide at this place.

This species is not uncommon about the mouths of the Indus, and along the Sindh and Mekran Coasts as far, at any rate, as Gwader. I saw specimens just outside the Kurrachee Harbour, beyond the Oyster Rocks; but failed to procure any there. They were most common at Soomeeanee Bay, just at the boundaries of Khelat and Sindh, and it was there that I procured most of my specimens. Like all grebes these birds depend for safety on their extraordinary diving powers, and after one or two shots have been fired, they never dream of flying when any boat is at all near them. On the other hand, before they have been disturbed, I noticed them flying about, more than

I have ever seen any other grebe do. On two or three occasions I noticed them taking spontaneously flights of fully a quarter of a mile, three or four together flying low, and very rapidly; and at Gwader I noticed a single bird flying pretty high across the strip of sand that divides the eastern and the western bays, and on which the town is built.

None of my specimens were in full breeding plumage; the most advanced, a male, though furnished with the long silky orange red tuft behind the eye, still exhibited a white speckling on the chin and throat, and only bore the faintest trace of the rufous striation which is said to characterize the sides and flanks in summer; but as my specimens were all procured in February, this was only to be expected.

Dimensions.—Male, (only one measured); length, 13; expanse, 24·5; wing 5·6; foot, length from heel to tip of mid toe, 3·2; width 4; weight 1lb; bill at front, 1; tarsus, 1·75.

Females, (three measured); length, 12·2 to 12·7; expanse, 22·5 to 23·5; wing, 5·2 to 5·4; foot, length, 2·9 to 3·1; width, 3·6 to 3·75; weight, 1 lb to 1 lb 3 oz.; bill at front, 0·9 to 0·94; tarsus, 1·6 to 1·7.

In all, the bills were black; the irides, vermilion; and the legs and feet greenish plumbeous, interiorly, and blackish, exteriorly. My most advanced male has the whole of the top of the head, together with the rest of the upper parts, the chin, throat, and neck all round, blackish brown; very glossy on the head, back and wings, duller and browner on the neck all round; the chin, and throat almost quite black, but still a good deal speckled with white; this white speckling extending as a stripe up the sides of the neck behind the ear coverts. There are two short thick tufts on either side of the occiput, which, though scarcely noticeable in the dried skin, are erected at pleasure in the live bird. Immediately behind the eye, extends for about 1·4 inches, a broad streak of orange and reddish yellow, silky, glistening feathers. The inner web of the sixth primary and almost the whole of the subsequent primaries and secondaries, pure white; but this is scarcely seen in the closed wings, the tertiaries and all the coverts being unicolorous with the back. The whole breast, abdomen, and vent, satin white; a little tinged with greyish brown about the vent. The tail can scarcely be said to exist, what there is of it is unicolorous with the back, and on either side of it; and of the tail coverts, a good deal of white appears. The sides and flanks are mottled with blackish brown, and there are traces of a rufous, or orange striation.

In full breeding plumage I believe that the sides and flanks are very strongly streaked with orange red, and the parts that I have indicated as speckled with white are entirely black; in the winter plumage the colors are duller; the front of the neck is an earthy brown; and the whole of those portions which I have indicated as speckled with white are pure white; the orange red tuft behind the eye is entirely wanting.

In a quite young bird that I obtained, the colors are duller still, the whole top of the head and back of the neck are a dull, rather dark earthy brown; the chin, throat, and the stripe running up behind the ear coverts pure white; the rest of the front of the neck, very pale earthy brown, and all the feathers of the mantle narrowly edged with dingy fulvous white.

975.—*Podiceps minor*, L.

The little dabchick was, as might be expected, very plentiful in all the inland waters of Sindh. Mr. Gray retains *philippensis*, Bonn, as distinct, but with a note of interrogation. So far as our Indian birds are concerned, I have compared a large series with eight English specimens, and can discover no constant difference whatsoever.

976 *bis*.—*Puffinus Persicus*, Hume. *Stray Feathers I.*, p. 5.

I have already fully described this species *loc. cit.*, and have nothing further here to add in regard to it.

977 *ter*.—*Stercorarius parasiticus*, L. *Lestris Richardsoni*, Audubon.

A kind of skua which I believe to be referable to the species above quoted, is common at sea, along the coasts of Sindh and the Gulf of Oman. The birds are very wary, the consequence was, I only succeeded in procuring a single specimen. This was a male, and as well as I can judge, a bird of the second year. The central feathers only project about 0.75 beyond the rest. I do not think that the changes of plumage among these skuas, is at all well understood, and in the absence of European specimens to compare, I cannot be certain whether this is a new species or whether I am correct in referring it to the species commonly known as Richardson's skua.

English writers distinguish between this which, according to Sundevall, is the true *parasiticus* of Linnæus, and a slenderer, smaller, but longer tailed species which Yarrell calls Buffon's skua, but which I see Schlegel gives as *S. cephus*, Brünich. They also give the large skua *S. catarractes*, Vieillot,

and *S. pomarinus*, Gray, the Pomarine skua, of which latter Dr. Jerdon remarks, that "a specimen was procured on the Burmese coast by Major Tickell," adding that "as it is a bird frequenting high latitudes, its occurrence in tropical regions must have been quite exceptional." As a matter of fact, however, I saw at least fifty skuas between Gwader and Bombay, and this was in splendid weather and during February, so that the birds cannot be exceptional stragglers. If my bird belongs to any of the four species above noted, it is *parasiticus*; but I think it not improbable that it may hereafter turn out that both my specimens and Major Tickell's belong to a distinct species intermediate between *pomarinus* and *parasiticus*, in which case it may stand as *S. asiaticus*, nobis. The following are the exact dimensions and a description of my bird:

A male killed at Pusnee on the Mekran Coast, a short distance beyond the Sindh boundary, on the 16th February 1872; length, 19; expanse, 45; tail from vent, 6·4; wing, 13; wings, when closed, reach to end of longest tail feathers; bill at front, including cere, 1·2; cere only, 0·7; bill from gape, 2·02; tarsus, 1·8; feet, length, 2·3; width, 2·4, mid toe and claw, 1·78; weight, 1lb 3 oz.

The legs and feet dull black; bill brown; the cere, pale greenish brown; the irides, brown.

The central tail feathers are manifestly imperfectly developed, one projects 0·75, and the other 0·25 beyond the rest of the tail; the bird is obviously in a state of change of plumage as the two first primaries in each wing are old and comparatively pale brown, with conspicuous white shafts only tinged brownish for about 0·5 immediately above the tips; while all the other primaries are new and very dark brown, almost black, with only the basal half of the shafts white, and even that slightly tinged brown; some of the secondaries, scapulars, coverts, and feathers of the back are brown; the same dull pale umber as the first two primaries, and so are two of the tail feathers, while the whole of the rest of the back, wings, and tail are of the same deep blackish brown as the third to the tenth primaries. What is noticeable is, that on the back and scapulars, the paler brown feathers have no white tippings, which most probably have worn off, these feathers being the old ones, but all the dark feathers of these parts have narrow brownish white margins. The upper tail coverts are conspicuously tipped with white, and the longer ones have two, very broad, slightly rufous or fulvous white bars. The forehead, crown, and occiput, are dull, pale, wood brown, here and there, faintly tinged rufescent, the feathers with pretty broad blackish brown central streaks;

the lores are greyish white; the feathers narrowly dark centred; the cheeks, ear coverts, and nape are white, more or less tinged with fulvous or buffy, with very narrow dark brown shaft stripes; the chin and throat, white; the feathers of the base of the neck all round and the breast white, tinged in places fulvous, in places slightly rufescent, with a broad dark brown subterminal transverse band; the sides, flanks, lower tail coverts, white, with broad brown transverse bars, which in some of the lower tail coverts have a slightly rufescent aureola; the abdomen and vent are white, but on the sides of the abdomen, there are faint traces of barrings similar to those of the breast and flanks. The axillaries broadly barred, with a somewhat greyish brown and greyish white; the tibial feathers, pure brown. I hope soon to have other specimens from the neighbourhood of Kurrachee and to ascertain whether this bird is really *S. parasiticus* or a new species *S. asiaticus*.

978 bis.—*Larus Argentatus*, Brün.

The herring-gull was very abundant about all the larger lakes in Sindh. I have met with it also occasionally in all the larger rivers of the Punjab, in the Kurrachee Harbour, along the Mekran Coast, at Muscat, and again between Kurrachee and Bombay. Years ago I pointed out that this species occurred in Upper India, having obtained specimens from the Nujjufghur jheel, in the Delhi district, at the Sambhur lake, and in one or two other localities. So far as I have yet been able to ascertain, *Larus fuscus* does not occur in India. A young bird given me by Dr. Jerdon as the young of *fuscus*, turns out to be the young of this species, and I have no doubt that the adult specimen which Mr. Blyth mentioned, Dr. Jerdon's sending from the Coromandel Coast was not *fuscus*, but the species I shall next treat of, *occidentalis*; *fuscus*, I may notice, with *marinus* and *dominicanus* belong to a sub-division of the larger gulls which have the primaries black to their bases, while *argentatus* and the species next following, have the primaries grey or greyish white towards their bases.

The herring-gull varies a good deal in size, and a number of specimens measured in the flesh, gave the following results: length, 23 to 25.75; expanse, 58 to 60; wing, 16.75 to 18; tarsus, 2.5 to 2.78; bill at front, 1.9 to 2.35; from anterior margin of nares to tip, 0.9 to 1.07; mid toe and claw, 2.25 to 2.6; weight, 1 lb. 12 oz. to 2 lb. 6 oz.

As a rule the males are larger than the females, but this does not *invariably* hold good, as many males will be found smaller than many females, though the largest birds of all are always males.

In the summer plumage, which, however, some birds assume as early as February, the whole of the head, neck all round, entire lower parts, upper tail coverts, and tail are pure white. The entire mantle and back, tertiaries, and secondaries, a delicate pale bluish grey; the tertiaries, secondaries, and longer scapulars broadly tipped with white, and the earlier secondaries especially, with the major portion of the inner webs also white; the edge of the wing about the carpal joint, white; the first primary with the whole outer web black, with a white tip, and a broad white band across both webs near the tip, and above this band again a considerable portion of the inner web black, the rest of the inner web pale grey; the second primary similar; but the white band often wanting entirely, often reduced to a larger or smaller spot on the inner web only, the black on the inner web of less extent than in the first, and the basal portion of the outer web, the same pale blue grey as the coverts and the rest of the wing; the third and following primaries have only the white tips, and no white band; as they recede from the second, more and more of the outer webs become grey, and the black diminishes proportionally on the inner web also, so that on the seventh or eighth, it is generally reduced to a narrow black band across both webs, or in some cases on the outer web only, while in some it is entirely wanting on the last three quills. In some specimens the basal portion of the inner webs is almost pure white, in others it is the same pale grey as the mantle.

The extent of the white band on the first primary is very variable; in some specimens, it is little more than half an inch, in others it is two inches broad; in one specimen it is absolutely wanting, in another it extends right to the tip, the usual intervening subterminal black band having entirely disappeared; that on the second primary is equally variable.

In the winter plumage the nape and the back of the neck are thinly striated with pale brown, and there are traces of similar striæ, but much feebler and fainter as a rule on the crown, and to judge from my specimens, these are often entirely wanting.

In the winter plumage the legs and feet are greyish white, with more or less of a fleshy tinge; in one specimen they were an excessively pale lemon yellow, with a grey shade; in another, greenish yellow. In another specimen killed in the middle of February, and apparently in every other respect in full summer plumage, the legs and feet were pale yellow; both Macgillivray and Yarrell speak of the legs and feet as flesh color, perhaps our ideas in regard to color differ; but certainly none of the fifty odd birds that I shot had what I call flesh-colored legs.

The bill is yellow, red near the tip of the lower mandible, but in the winter they are a very dull yellow, whitish at the tip, with a dark spot near the tip on both mandibles, and an orange spot in the tip of lower mandible; other specimens had the greater part of the bill pale greenish yellow, but all have a dusky spot or bar towards the tip on both mandibles, turning to orange red on the lower mandible near the angle of the gonys; the irides of all I examined were a very pale yellow or yellowish white, and the eyelids orange red.

In the young the legs and feet are a sort of pale, dingy dove color; the bill blackish horny, greyish white on culmen, and at base of lower mandible. As for plumage, the whole lower parts are dull white, streaked with brown on the base of the neck in front, and more or less broadly spotted or mottled with this same color on the sides of the breast, body, and flanks, and with faint traces of similar spots on many parts of the abdomen. The axillaries are white, barred with brown; the wing lining is a somewhat darker brown, mottled with white; the forehead, lores, chin, and upper throat, purer white, and in all my specimens unstreaked; crown, occiput, nape and back, and sides of the neck, white or brownish white, with pale brown streaks, broader on the neck, and narrower on the crown and occiput, from which places they first disappear as the bird advances to maturity. The back and mantle, mottled darker and lighter brown; the feathers tipped with brownish or greyish white; the quills and the primary greater coverts, hair brown, darker on the primaries, with narrow white tippings to the secondaries, and the greater primary coverts, and traces of the same on the last two or three primaries. The rump and upper tail coverts are mingled brown and white; the tail feathers with nearly the terminal two-fifths of the central feathers and a lesser portion of the lateral ones dark brown; the basal three-fifths brown also, but mottled more and more with white towards the bases. There is not the least trace of the pale blue grey that characterises the plumage of the adult in the quite young bird. As the bird grows older, the markings disappear entirely from the under surface, the striæ on the head grow fainter and fainter, the mottling at the base of the tail increases in extent, and the feathers of the mantle begin to take on a pale French grey shade, the brown disappearing from it, and so by degrees the bird assumes the adult plumage; but long after all the other changes are complete, an irregular imperfect blackish brown mottled bar remains at the tip of the tail, the first five or six primaries still want their white tips; the second primary exhibits no trace of a white band, and two or three scapulars, still more or less mottled with brown, may be detected.

978 *ter.*—**Larus occidentalis**, Audubon.—*L. borealis*, Brandt nec. Bruch.—*L. argentatus*, var. *cachinnans*, Schrenk. *Reisen*, I. p. 504.

This species, hitherto unrecorded from India, is abundant beyond measure at Kurrachee. It stalks about on the harbour quays, amongst people and carts, as crows do elsewhere, and it congregates by thousands round the reed-built huts where a short distance outside Kurrachee the fishermen bring their fish for sale to the Kurrachee fishmongers. Associated with it may be seen the herring-gull, but whereas the latter is found all over the country inland, the Asiatic herring-gull as this species may be called, never quits the immediate neighbourhood of the sea.

I found it all the way up the Mekran Coast, I shot it at Muscat and it hung about the steamer all the way from Kurrachee to Bombay. I have no doubt that it was an adult of this species that Dr. Jerdon sent from the Coromandel Coast and that Mr. Blyth accepted as *fuscus*. The color of its mantle indeed closely approaches that of *fuscus*; being exactly intermediate in tint between that of *Larus marinus* and of the common herring-gull. This dark mantle renders it conspicuous amongst all the other gulls of the Kurrachee Harbour, and I myself, when I first saw it, made sure that I had at last secured the lesser black-backed gull that I had so long and vainly searched for.

Except as regards color, and there the difference is very marked, this species is inseparable from its European prototype *argentatus*. If you compare single specimens you fancy that you can establish differences in the length of bill, tarsi, and toes, shape of nostrils, angulation of gonyes and the like, but with twenty or thirty specimens of each before one, it is manifest that no single difference except that of color holds, unless, indeed, *occidentalis* averages slightly larger. I measured a number carefully in the flesh, and the following are the results:

Males, length, 24 to 24.5; expanse, 59 to 60; wing, 16.75 to 17.8; tarsus, 2.57 to 2.7; mid toe and claw, 2.3 to 2.4; bill at front, 2.04 to 2.25; from anterior margins of nostrils to tip, 1 to 1.03; weight, 2 lb 6 ozs. to 2 lb 12 ozs.

Females, length, 22 to 23.5; expanse, 55.5 to 58; wing, 16.5 to 17; tarsus, 2.5 to 2.68; mid toe and claw, 2.2 to 2.41; bill at front, 1.9 to 2.15; from anterior margins of nostrils to tip, 0.87 to 1.03; weight, 1 lb 14 ozs. to 2 lbs.

The irides vary from brown in the young to pale brown, brownish yellow, and pale yellow to white in the old birds; the legs and feet vary partly according to age and partly according to season, from pale pinkish dusky, to pale greyish fleshy, pale

yellowish fleshy and pale creamy yellow, to pale yellow in the adults. The bill of the adult is wax yellow, with bright red patch on lower mandible towards the tip, and with the gape and eyelids orange red; less advanced birds have the bills either black, fleshy white at base of lower mandible, or pale livid, a black patch near the tip of both mandibles, or a greenish white, with a similar black patch, or with the same dusky patch and an orange one at the angle of the lower mandible, or whitish with an orange patch towards the tip of the lower mandible, with a corresponding but fainter yellowish one on the upper mandible.

As for the plumage it is precisely similar to that of *argentatus* except that the whole mantle and the basal portion of the primaries on both webs is a comparatively dark slaty grey instead of the pale blue grey of our European herring-gull, and also in my opinion, that the stræ of the head are more numerous set, and those of the back of the neck larger and darker in the winter plumage of our present species.

If, as I believe I have rightly identified this species, I am at a loss to understand why Professor Schlegel has placed this species in a different section of the *Laridæ* to the common herring-gull. He himself remarks, that "it is absolutely like *argentatus*, from which it is only distinguishable in the adult plumage, when the primaries, and the grey of the mantle and wings are much darker than in this species, though paler than in *L. fuscus*." As regards the young birds, until a few of the grey feathers of the adult begin to appear on the centre of the back, I am unable to give any constant rule for distinguishing them from those of *argentatus*; but the first feather of the perfect plumage that shows out, betrays at once whether the youngster is an European or an Asiatic.

Heretofore this species has been only recorded from the West coast of America, northward from California, and the east coast of Asia, from Macao northwards, but it has also been observed inland from Lake Baikal northwards.

Mr. Gray separates *occidentalis*, Aud., from America, as distinct, but I prefer to follow Schlegel here.

If Mr. Gray is correct, our bird will stand as *borealis*, Brandt, *nec*. Bruch.

978 *quat.*—**Larus Lambruschini**, Bonap.—*L. tenuirostris*, Temm.—*L. gelastes*, Licht.—*L. roseus*, Géné.

This lovely species is numerically the most abundant of all that frequent the Kurrachee Harbour, and all the way up the Gulf of Oman in suitable localities, I met with vast flocks of it. Towards

mid-day it gathers together at the point of some long sandy spit stretching far out into the water, or else congregates on some tiny islet, and there suns itself, hundreds of them closely packed within the space of a few square yards, close to the water's edge. Sometimes one or two sooty gulls, conspicuous in their mourning weeds, may be detected amongst them, or a small party of *Thalasseus bengalensis* or *Thalasseus cantianus*; but as a rule they are very exclusive, and admit no other bird into their company. Some little distance apart, one or two huge black-headed gulls or a little group of *ridibunda* will be seen, but these do not mingle with the slender bills at the time of their noonday siesta.

This species, which has hitherto only been recorded from the Mediterranean and the Caspian Sea, appears to have its head quarters, at any rate during the winter, in the northern parts of the Indian Ocean and the Gulfs of Oman and Persia; no other sea-bird did I see collected in such vast flocks as this species.

Just inside the Kurrachee Harbour, under the lee of the Minora headland, a strip of sand affords them a sunny resting place, and there daily in the cold weather from about 11 till 2 or 3 o'clock, thousands may be seen congregated together, looking from Minora itself like a huge white sheet. They are very tame, and a dozen may be secured, at a single shot.

When freshly killed, the whole lower parts, the back of the neck, and upper tail coverts are suffused with a delicate salmon pink, and though this has nearly faded now out of some of my specimens, one or two still exhibit this lovely colouring. I measured several of them in the flesh. The following are the results :

Male, length, 17·5 to 18·25; expanse, 39·5 to 40·5; tail from vent, 4·6 to 4·8; wing, 11·7 to 12·2; wings, when closed, reach from 1·2 to 1·8 beyond the end of tail; bill at front, 1·63 to 1·82; from gape, 2·4 to 2·6; length of gonys, from angle to tip, 0·57 to 0·65; tarsus, 2 to 2·15; mid toe and claw, 1·55 to 1·7; weight, 12 to 14 ozs.

The females are rather smaller. Length, 16·75 to 17·25; expanse, 36·5 to 38; wing, 10·8 to 11; weight, 10 to 11 ozs.

In, as I take it, the full summer plumage, when the rosy hue is strongest, the legs and feet are deep red; the claws and webs dusky; the bill is deep red, or blackish red, almost black is some; the eyelids are bright red, and the irides pale yellow; but many of the birds, as I believe, seasonably less advanced, had the legs and feet pale orange, the claws brown, and the bill pale orange, dusky towards the tip, and every intermediate shade of color was noticeable; in one or two specimens, not only the bill, but the legs and feet were almost blackish red.

In the full plumage the whole head, neck, all round, entire lower parts, rump, upper tail coverts, and tail, white, everywhere tinged rosy, but most faintly so on the head and lateral tail feathers, The entire mantle including the secondaries and tertiaries and all the coverts, (except those about the carpal joint, and the greater and median coverts of the first four or five primaries, which are white,) together with the axillaries and wing lining are a delicate pale bluish French grey, palest on the back tertiaries and axillaries. The first primary is entirely white, except the extreme tip, and the greater portion of the outer web which are black; the second to the fourth primaries are white, with successively broader and broader black tips, and an increasingly broader black or blackish brown band on the inner margin of the inner web; the fifth primary is similar to the fourth, but has a narrow white tip, the white of the outer web shaded with grey, and the inner web, slaty dusky; the sixth primary is entirely pale French grey, slightly darker than the coverts with the white tip, and a broad blackish brown subterminal band; the remaining four primaries are entirely French grey.

Almost all the birds killed were adults; two in which the colors were duller and the tippings of the primaries browner, and in which some of the secondaries have brown streaks on the outer webs towards the tips, have the tips of the tail feathers blackish brown, or in one dull wood brown, for about 0.75 of an inch; these birds have also less white on the primaries.

To a casual observer these birds closely approximate to *L. ridibundus* in winter plumage; but they may be very readily distinguished from these; they never get the dark hood that *ridibundus* does, and they never have the dark spot in front of the eye and behind the ear coverts that *ridibundus* always exhibits in the cold weather; the bills also are considerably longer, and in proportion to their length slenderer than those of *ridibundus*; the gonys especially is conspicuously longer, measuring from the angle to the tip in this species in males from 0.57 to 0.65; while in the same sex in *ridibundus*, it measures from 0.45 to 5; lastly, the perfect adults in this species want entirely the black margin on the inner web of the first primary, while this is as far as my experience goes invariably present ever in the fullest breeding plumage of *ridibundus*.

I may add that I never saw this bird except along the sea coast.

979.—*Larus ichthyætus*, Pall.

This magnificent gull was not uncommon on the Muncher lake, and at some few of the largest of the others of the inland waters. At Kurrachee and all along the Sindh and Mekran

Coasts, and again in the neighbourhood of Muscat, I constantly noticed it.

As Professor Schlegel separates our Indian race as *L. minor*. I took the trouble to secure a good series of these, seventeen in number, old and young, in winter plumage and in full breeding plumage, in order to test the correctness of his conclusions. He says, that *Larus ichthyatus* from the Caspian Sea to the Mediterranean has a wing from 18·6 to 19·7; while our smaller (?) race which he says appears to replace this in Bengal, has a wing of from 17·5 to 17·88. Now out of my twelve males from Sindh, the smallest wing measures 19, the largest 20. Of the five females, the smallest measures 18·5, the largest 18·9; but it may be said that Professor Schlegel refers only to Bengal, so I compared specimens which I had from the Nujjufghur Jheel, and I found that these agreed in length of wing with the Sindh birds. Now those from the Nujjufghur Jheel are Bengal birds; as a rule you only get them there early in the autumn and pretty late in the spring; a few hang about the place the whole cold season, but as a rule the birds you get there are Bengal birds, on their way to or from their breeding haunts in Central or Northern Asia. I have watched them, year after year, and have seen them every year at these seasons, steadily making their way up or down country, along the courses of the Jumna and the Ganges. To the best of my belief at no other time in the year do you meet them, except as very rare stragglers on either of these rivers above their confluence at Allahabad. At these precise seasons a dozen or more will pass you every day, (I have seen fifty in a single day) flying steadily up or down and following exactly the course of the river. The Nujjufghur Jheel, especially in the early autumn, is, in most years, a vast sheet of water approaching very closely to the Jumna, and here when the birds are on their way down, a large number of this species may be seen for a short time gathered together.

This species sits about upon the water a great deal. Both in the inland lakes and the bays along the Mekran Coast, they were much more commonly seen swimming about than sitting on the shore or flying.

The birds which we shot during the latter half of January had all of them white throats and some of them only slightly blackish mottled caps, but some of those killed at Muscat in the middle of February, were in the fullest breeding plumage, the whole head and neck all round being velvet black.

I notice that Dr. Jerdon is mistaken in describing the tail of the adult as having a black band; it is pure white, and the black band, when it occurs, is a sign of nonage.

A fine male, shot in breeding plumage, measured as follows: length, 29.25; expanse, 68; tail from vent, 7.5; wing, 19.5; bill at front, straight from forehead to point, 2.65; from gape, 3.8; tarsus, 3.2; mid toe and claw, 2.55; weight, 2 lbs. The irides were brown; the edges of the eyelids and gape, vermillion; the bill wax yellow, vermillion towards the tip, with a black bar across both mandibles just beyond angle of the gonys, and the extreme tips beyond this, orange yellow.

980.—*Larus brunneicephalus*, Jerd.

This gull appeared to me to be comparatively rare; I procured it in various parts of Sindh inland, and again on the Coast, but it was no where apparently common, and all my specimens exhibited signs of nonage.

981.—*Larus ridibundus*, L.

This species I have found pretty common in the larger rivers of the Punjab, in the Indus, in Sindh, about most of the larger inland lakes of the latter province, about the Kurrachee Harbour, along the Mekran Coast and at Muscat. All the specimens procured were in winter plumage, except a single female shot at Muscat, on the 23rd February, which had assumed the dark hood, though other birds killed at the same place and on the same day, as yet shewed no signs of the breeding plumage.

There is another species, much the same size as *ridibundus*, but with a somewhat stronger bill and tarsus, in full plumage with a black hood, and with the primaries entirely white, except the outer web of the first, I mean *L. melanocephalus*, Natterer, which I think I once saw at Kurrachee the day I was leaving, and which I fully expect will hereafter be there procured. The adult in full plumage may be at once recognized by the peculiarities above indicated. In regard to the young, Mr. Howard Saunders remarks, (Ibis, 72, page 79) that the best distinction exists in the first primary. "In the young *L. melanocephalus*, that portion of the inner web which lies *next* to the shaft is smoke coloured on both upper and under sides, whereas in *L. ridibundus* it is white, as is also the shaft. This holds good until *L. melanocephalus* has lost all colour on the inner web of the first primary when the dark edging of the same feather in *L. ridibundus* forms a still more marked distinction."

Unfortunately that portion of the inner web of the first primary which lies *next* the shaft, is not as a matter of fact *always* white in *ridibundus*; on the contrary, in one well marked stage of the immature plumage, the whole inner web is smoke colour with a white streak down the centre, leaving both the

portion next the shaft and the margin smoke coloured. However the rule may in most cases hold good and may be useful.

There is another gull very likely to occur in India, I mean *L. atricilla*, Linn.; this is somewhat larger than *brunneicephalus*, has the whole of the primaries, even in the perfect adult, entirely black, or at most only slightly tipped with white, the grey of the upper surface much darker than in *ridibundus* or *melanocephalus*, and in the breeding season the hood also much darker. This is another species for which ornithologists on the eastern sea coasts should look out. It is common on the western coast of America as far north at any rate as California, and is very likely to occur as a straggler on our south-eastern coast.

981 *ter.*—*Larus Hemprichii*, Bonaparte.—*L. Crassirostris*, Licht. nec. Vieillot.

The sooty gull is very abundant about the Kurrachee Harbour and all the way up the Mekran Coast and at Muscat, and both this and *L. leucophthalmos*, Licht. is, as every one going backwards and forwards to England must have noticed, common at Aden and all the way up the Red Sea. Jesse, I see, obtained it in Abyssinia, and Finsch gives a very good figure of it in the Trans. Zoo. Soc., Vol. VII, p. 4, May 1870.

In the Kurrachee Harbour it is like most of the water birds except *Larus occidentalis*, *Lambruschini* and *Thalasseus cantiacus*, somewhat wary, but at Gwader and Muscat, it is excessively tame and a constant attendant on all the fishermen's canoes, who have only to wave their arms round their head as if throwing out offal of fish, and to call *ailow, ailow*, to gather a dozen of them round the boat in a few minutes. In this way, while I procured only three or four specimens at Kurrachee, and that with some little trouble, at Muscat and Gwader, I obtained at once as many as I required. None of the other gulls are so tame as these are, and none of them apparently can be thus called. The following are dimensions taken in the flesh :

Males, length, 18·75 to 19·25; expanse, 46 to 48·5; wing, 14 to 14·5; tail from vent, 4·75 to 5·6; wings, when closed, reach to from 1·85 to 2·4 beyond end of tail; bill at front, 1·98 to 2·1; from gape, 2·4 to 2·6; tarsus, 2 to 2·2; mid toe and claw, 1·85 to 1·95; weight, 14 oz. to 1 lb. 2 oz. Female (only one measured) length, 19·2; expanse, 46; tail from vent, 5; wing, 13; wings, when closed, reached 2 beyond end of tail; bill at front, 2; from gape, 2·6; tarsus, 2·17; mid toe and claw, 1·9; weight, 13 oz.

Bill, pale green, with a black bar near the tip, beyond which

the tips are vermillion ; legs and feet, greenish grey or greenish fawn ; claws, black ; irides, brown ; in younger, or perhaps seasonally less advanced birds, the legs and feet are brownish plumbeous ; the webs, dusky ; the bill, plumbeous dusky on culmen and towards tip, and orange red at tip.

Plumage.—The forehead and lores are pale greyish brown ; the cheeks, sides of the head, base of lower mandible, crown and occiput, a pale, but somewhat less greyish brown ; traces of a darker brown half collar on the nape, which probably is more developed in the breeding plumage ; chin, pure white ; throat white, more or less mingled with pale brown ; neck all round the whole mantle including the wing coverts, breast, and sides, a dull, smoky, sooty brown, with here and there, especially on the coverts, a slightly slaty tinge ; axillaries and wing lining similar, but darker and browner ; the edge of the wing white ; the abdomen, vent, flanks, tail, and upper and lower tail coverts, pure white. Primaries black, conspicuously white tipped, and the later ones with an irregular paler spot on one or both webs not far above the tips ; the secondaries very broadly white tipped, blackish or dark brown on the outer webs, paler on the inner ; the basal halves or more of their shafts white ; the tertiaries, a sooty grey brown, more narrowly tipped white ; and paling towards the tips.

The young birds have the central tail feathers almost entirely brown, the lateral feathers brown on the outer webs, and for the terminal one-third to one-half of the inner webs ; the rest of the inner webs, white, and all the feathers narrowly tipped brownish white ; the neck and back, as well as the scapulars, tertiaries, and coverts are a paler wood brown ; the two latter more or less tipped with white, and both primaries and secondaries are paler colored than in the adults.

The vast majority of the specimens which we obtained, though in adult plumage in other respects, still exhibited traces of a black band towards the tips of the tail feathers. Some have the whole crown and occiput as pale as the lores, in some the chin is mottled white and brown ; and there is little or no white about the throat. In some again the darker half collar on the nape is strongly marked, in others it is barely traceable.

982.—*Sterna caspia*, *Pall.*

The Caspian tern, which is almost unknown in the North-Western Provinces, Oudh, the Punjab, and Rajpootana, is occasionally seen in the Indus after that river enters Sindh, and is very common in all the larger lakes of the latter province. In the Muncher lake I have counted more than fifty on the wing at

the same time, each bird flying separately on his own responsibility, and never so far as I have noticed associated in flocks or parties as is so often the case with the other terns and gulls. The local name is *keykra* which does approximately (at any rate when pronounced by the native fishermen) represent the harsh cry of this species. This bird has a very human peculiarity which I have not often noticed in others, *viz.*, it always cries out when it is hit. If you fire at it and *miss*, the bird pursues "the even tenor of its noiseless way," but so sure as a few body feathers are knocked out, off goes the bird with his bill straight in front of him, anathematizing the sportsman in most unseemly fashion. Usually, when not interfered with, this species may be distinguished at a great distance by its long pointed bill turned downwards at right angles to the body.

Individuals of both sexes vary much in size, from 20 to 23 inches in length and from 48 to 54 inches in expanse; they often weigh fully a pound and-a-half. In the Kurrachee Harbour they were not uncommon, and I obtained specimens in more than one locality along the Mekran Coast, and saw several at Muscat.

**983.—*Sterna nilotica*, V. Hasselq.—*S. Anglica*.
Montagu.**

This species was far from common in Sindh. I met with it occasionally in the larger inland pieces of water and once or twice on the Indus, but the only places where I saw numerous specimens were the Muncher lake and Kurrachee Harbour. Unlike *aurantia* and *javanica*, the present species appears to remain for a considerable period in winter plumage, and I find specimens killed early in November and well into March still in this garb.

**984.—*Sterna hybrida*, Pallas.—*S. indica*, Stephen.
—*S. leucopareia*, Natterer.**

This species was occasionally met with on the inland lakes of Sindh; but was nowhere numerous; the fishermen however affirmed that it bred there, during the inundation, and as it breeds freely in Cashmere, in Oudh, and Rohilcund, and even (though more sparingly) in the North-Western Provinces, this may very likely be the fact, though it needs verification.

985.—*Sterna aurantia*, Gray.

This large river tern which is a permanent resident in all the chief rivers of Northern India at any rate, was fairly abundant the whole way down the Jhelum, Chenab, and the Indus, right

down to the sea, as I saw specimens even in Kurrachee Harbour. Outside the Harbour, however, I missed it entirely, and never once saw it in the Gulf of Oman. In all the large broads of Sindh (as we should call them, or dhunds as they are locally designated) this tern abounds beyond measure.

In the winter plumage this bird entirely loses the black of the head, retaining only a dark line round the eye and a dusky blackish tint on the ear coverts. The bill, too, at this season is tipped dusky. It is however rare to obtain specimens in this stage; the change does not begin till after the 1st of December, in fact I have obtained specimens in the full breeding plumage as late as the 15th of December, and by the 1st of February, or at latest by the 15th, the full plumage is again assumed.

Adams, I observe, states that *Sterna hirundo** L., is common on the Indus and the rivers of the Punjab. I have made two trips down the Jhelum before, and I this year worked the Jhelum from Jhelum to the Chenab, the Chenab to the Indus, and the Indus to Sukkur, and again from Sehwan to Hyderabad. We had sometimes four guns out; we only travelled by day and we worked not only the main stream, but all the more important side channels. On no occasion did we even see a specimen of the common tern, easily distinguishable at a considerable distance with binoculars, by the color and the shape of the bill, from *S. aurantia*, the only bird with which we could have confounded it, and this although we were specially on the look-out for it. During more than twenty years that I have been shooting in India, I have never met with a single specimen, though from my childhood upwards, I have been thoroughly familiar with it. The only specimens that I have ever seen were those brought from Yarkand and the head of the Pangong Lake by Dr. Henderson, and a single specimen said to have been obtained in Cashmere. I may have been singularly unfortunate, but my conviction is that it is almost unknown out of the Himalayas and that even there, the localities in which it occurs are high up and few and far between.

987.—*Sterna javanica*, Horsf.—*S. melanogastra*, Temm.

Mr. Gould says, that *Sterna javanica*, Horsf., is not identical

* I presume *S. fluvialilis*, Naum., the common tern, and not *S. hirundo*, L., the arctic tern is meant. The former (in the adult) has the tip of the bill blackish, a tarsus of 0·7, and wings reaching beyond the tip of the tail. The latter has the bill entirely red, the tarsus only 0·55, and a tail extending beyond the wings. In the young the difference in the size of the tarsus has chiefly to be relied on. The above diagnosis I take from Mr. Sharpe.

with *melanogastra*. I have not at the moment access to Horsfield's original description and can therefore form no independent opinion as to whether he is correct or not. But Mr. Gray says they are identical, and deeming it "better to err with Gray than, &c.," I retain Horsfield's name.

This species also was excessively common throughout the rivers of the Punjab and the lakes and streams of Sindh. Like the preceding, this bird only doffs the summer plumage for a very brief space of time. Up to the middle of December, I have shot it with the black belly and black cap, and again by the early part of February have obtained it in the same garb. In the winter plumage this bird likewise has the bill conspicuously tipped with dusky. I thought at one time that this dusky tipping of the bill was a sign of immaturity, but numerous specimens obtained at different times have led me to the conclusion that this is a portion of the winter dress.

988.—*Sterna Bergii*, Lichtenstein, (nec Reichenbach, which = *T. cantiacus*, Gmelin;—nec Hartlaub, which = *T. galericulatus*, Lichtenstein)—*Sterna velox*, Rüppell.

There are four distinct species at any rate, (if not more) of Oceanic Terns which are closely allied and differ chiefly in size, size of bill, and the coloring of the upper parts.

First there are (1) *S. galericulata*, Lichtenstein, (= *S. cristata*, Swainson, and probably *S. elegans*, Gamb., and *S. comata*, Phil. et Landb.) and (2) *S. maxima*, Bodd, (= *S. cayennensis*, Gm., and probably *S. regia*, Gamb.) which in the breeding season have the whole front of the head down to the beak, black; the bill is a yellowish red, and the upper parts of a very pale silvery grey becoming almost white. These have wings respectively of from 11.5 to 12, and from 14 to 15.5; in both the bill at front is from 2.4 to 2.5, but that of the former species is comparatively very slender. These belong to the Coasts of Africa and America; our bird, which is a peculiarly dark grey above, has a very robust bill, and a broad white frontal band even in the breeding season, is certainly not referable to either of these species; next there is (3) *Sterna pelecanoides*, King, = *S. rissa*, Muller = *S. nigripennis*, Bonap, and possibly *cristata*, Stephen, and if so, should stand by this latter name. This belongs to the same sub-group as our bird, and has the forehead white at all seasons. It differs from our bird in its somewhat smaller size, and somewhat less dark upper parts. Schlegel gives the wing in this species at from nearly 13 to a little less than 14, and the bill from a little more than 2 to nearly 2.5. The bill is yellow

with more or less of a greenish tinge. The fourth is the species which frequents our Indian Coasts which I had previously received from the Megna near Commilla in Tipperah, and from Madras, and which I now found to be common along the Sindh Coast, in the Kurrachee Harbour, and along the Mekran Coast.

In my birds the wings vary from 14·2 in the smallest females to 14·8 in the largest males, while the bills vary from 2·6 to 2·75. The upper plumage except of course the white neck, and the black or black and white head according to season is a very dark grey, with more or less of a brownish tinge.

Schlegel's maximum dimensions for this species somewhat exceed in some cases those given above, but the latter all exceed his minima. He gives the wing at from 14 to 15·3 and the bill at from 2·5 to about 2·7.

This species, though not uncommon, is on the Sindh Coast, and the Gulf of Oman very rare as compared with either *S. cantiaca*, or *S. bengalensis*. Of both these latter hundreds may be seen daily; of the present species I saw at most a dozen and procured only five specimens.

All these three latter species are said to breed on the rocky island of Astolah, famous for its turtles, and which lies off the Mekran Coast about half way between the boundary of Sindh and Gwader. The breeding season is said to be May.

990.—*Sterna bengalensis*, Lesson—*S. affinis*, Rüppell.—*S. media*, Horsf.—*S. maxuriensis*, Ehrenberg—*S. Torresii*, Gould.

This species is excessively abundant in the Kurrachee Harbour, and in all suitable bays, and back-waters, from the mouths of the Indus, at any rate to Gwader on the Mekran Coast; while *Bergii* is met with only singly, *bengalensis* and *cantiaca* herd together in vast flocks, and though these too may be met with singly, whilst feeding, morning and night, at mid-day they are always seen congregating in such masses that a single shot, (and they have apparently no fear of men or guns) secures a dozen specimens.

It will be observed that in regard to the synonymy of this species, I have followed Schlegel; the subject is unquestionably, at present a thorny one, and it is only right to explain, that Mr. Gray acknowledges three distinct species where Schlegel (whom I believe to be right) gives only one, viz.:

(1.)—*Affinis*, Rüpp., *arabica*, Ehr., from the Red Sea and Madagascar.

(2.)—*Maxuriensis*, Ehr., *melanocephala*, Tem. North Africa.

(3.)—*Media*, Horsf., *bengalensis*, Cuv. (he seems to ignore *bengalensis*, Lesson,) *Torresii*, Gould, from Java, India, Ceylon, North Australia.

990 bis.—*Sterna cantiaca*, Gmelin.—*S. Striata*, Gmelin.—*S. Boysii*, Latham.—*S. Bergii*, Reichenbach, nec *Lichtenstein*, Tab. 19, Fig. 265.—*S. Acuflavida*, Cabot.

The sandwich-tern which has hitherto apparently escaped the observation of ornithologists in India was excessively plentiful in the Kurrachee Harbour and everywhere along the Coast from the mouths of the Indus to Gwader. I also procured it at Muscat. This species is at once distinguished by its long, straight, black, yellowish-tipped bill. All the specimens which I procured were in winter plumage, one only, shot on the Mekran Coast, in the latter end of February, approached nearly to the summer plumage. The males in this species are somewhat larger than the females. The following are dimensions in the flesh :

Male, length, 17 to 18 ; expanse, 37 to 39 ; tail from vent, 6 ; wing, 11·5 to 12·5 ; bill at front, 2·2 to 2·4 ; wings, when closed, reach to from 0·2 to nearly 1 beyond the end of tail ; weight, 10 to 14 oz.

Female, length, 16 to 17 ; expanse, 36 to 38 ; tail from vent, 6 to 6·5 ; wing, 11 to 11·75 ; bill at front, 2·15 to 2·35 ; wings, when closed, reach to from 0·75 to 1·1 beyond the end of tail ; weight, 12 oz.

Description.—The legs and feet are black ; the bill is black with the tips of both mandibles, for about 0·35 to 0·5, pale horny yellow. The irides brown.

In summer plumage the whole of the forehead, top, and back of the head, ear coverts and elongated broad occipital crest, glossy black. The whole under parts, neck all round, upper tail coverts and tail white ; the lower parts with a delicate roseate tinge. The mantle and wings pale silvery grey ; all the quills margined with white at the tips and on the inner webs, and beyond the tips the greater portion of the inner webs, especially of the earlier primaries, white. The first primary somewhat darker but its outer web white on the lower surface.

In the winter plumage the whole of the front and top of the head becomes satin white, only in front of the eye there remains a narrow black crescent, and the feathers from the back of the eye all round the crest are tipped dull black. The rosy hue of the lower parts almost disappears. In the intermediate stage, in which most of my specimens were procured, the whole crest

and occiput are glossy black. The crown is black mottled white, and the forehead here and there speckled with black.

This species appears to be entirely a sea tern, I never observed it away from sea water. It is very tame and fearless, flying over and past the boats as one is fishing, but like the other terns, and unlike the gulls, taking no notice of dead fish or fish offal which may be thrown out as it passes. It generally flies about, with its long thin bill pointed downwards like the Caspian tern, but its flight is not nearly so strong nor its strokes at fish as sudden and rapid as those of this latter species. In mid-day it congregates in vast flocks on some sandbank, low rock, or sandy promontory, and there suns itself for hours together taking little, if any, notice of passing boats.

Our birds are absolutely identical with European specimens that I possess. Mr. Gray, I note, considers *Bergii* of Reich. (*nec* Licht), or as it should stand *acuflavida* of Cabot, founded on specimens from the Gulf of Mexico entitled to specific separation, Schlegel does *not*, neither do Selater and Salvin, and as the British Museum contained no specimen of the supposed *acuflavida*, I prefer to follow Schlegel.

995.—*Rhynchops albicollis*, Sw.

I found this tolerably abundant in the Jhelum, Chenab, Sutlej, and Indus, as low down as Hyderabad. I never saw it about the Kurrachee Harbour or in any of the lakes. It is exclusively, I think, a river bird. In the Ganges, the Jumna, the Megna, and all the Eastern rivers, it is much more often seen than in those we traversed in this recent trip.

996.—*Phaeton æthereus*, L.

The boatswain or bo's'un, as he is called, is not uncommon in the northern portion of the Indian Ocean and up the Gulf of Oman. We saw a considerable number and secured six, five of which were males. I know very little of this species, but they are all, as far as I can judge, immature, for Schlegel gives the length of the central tail feathers in this species as 29 old French inches, which is equal to 31.5 English inches; in no one of my specimens do the central tail feathers exceed 9.5; or project more than 5.75 beyond the others.

They flew about the ship much like terns with their longish bill pointed downwards after the manner of *S. caspia* and seemed totally fearless, in fact were attracted to the vessel by guns which we fired at other birds; they did not, any of them, come very close, not nearer than 70 or 80 yards as a rule, but they flew round and round at this distance for some time; they were in small parties of from five to twenty, and were all as far as

I could judge, precisely similar to the specimens obtained. They were very carefully measured in the flesh, and the following are the results :

Males, length, excluding elongated central tail feathers, 16·85 to 17·8 ; central tail feathers project beyond the rest of the tail, 3 to 5·9 ; expanse, 37 to 39·5 ; tail from vent, including central tail feathers, 7·5 to 10·3 ; wing, 10·75 to 11·8 ; bill at front, 2·2 to 2·45 ; tarsus, 1 to 1·13 ; mid toe and claw, 1·55 to 1·8 ; weight, 1lb 1 oz to 1lb 4 oz.

The female was 18·05 long, exclusive of the lengthened tail feathers, which projected 4, beyond the other feathers ; expanse, 39 ; tail from vent, including central tail feathers, 9 ; wing, 11·7 ; bill, at front, 2·4 ; tarsus, 1 ; weight, 1lb 6 oz.

Irides, deep brown ; legs and hallux and its web, and basal joint of other toes, white, tinged bluish and creamy yellow ; rest of feet and claws black ; in some the bluish was replaced by a livid fleshy tinge, and one was slightly yellower on the tarsus ; bill, dull orange red ; margins of both mandibles, nostrils, and tips dusky ; in some the bills were slightly paler than in the others.

Plumage.—A broad, conspicuous black crescent in front of the eye, and a narrow black line from the gape to nostrils and nostrils to culmen, dividing the feathers from bill ; the whole forehead and the front part of the crown, ear coverts, and entire lower parts including wing lining, and axillaries, pure white, the lower parts of the body glistening like white satin ; a black line from the posterior angle of the eye, running round the back of the nape, where it forms a more or less conspicuous half collar. The hinder portion of the crown and nape inside the half collar, white, each feather with a triangular black bar near the tips, in a great measure concealed by the overlapping of the tips of the feathers ; the carpal joint of the wing, the four or five posterior primaries, the whole of the secondaries, the primary coverts except those of the first five quills, the secondary greater and median coverts, pure white ; the winglet the greater coverts of the first five primaries, the outer webs of the first five primaries, together with a narrow stripe along the shaft on the inner web, black ; the extreme tips and the inner webs of these feathers white ; the tertials and their greater coverts black, narrowly margined on the exterior webs and tipped with white ; the lesser secondary coverts similar ; the entire back, scapulars, rump, and upper tail coverts white, regularly and closely barred with black ; the bars being slightly cuspidate on the upper back, and the longest scapulars being almost devoid of barring, though this is not seen till the feathers are

lifted. The shafts of the first five primaries are entirely black, those of the subsequent ones black on their basal portion. The tail feathers white, the basal portions black shafted, and the lateral tail feathers mostly with an arrow head bar or spot near the tip. The female is precisely similar to the male.

We certainly saw fifty birds of this species, and to the best of my belief none of these differed materially from the six obtained, and I watched them off and on for some hours, with binoculars, at short distances. If these are, as I conclude them to be, the young of *P. athereus*, this is another instance of what is so commonly noticed, *viz.*, the young of a species, extending their wanderings much further than the adults do.

1001.—*Pelicanus onocrotalus*, L.

I only clearly identified this pelican on one occasion in Sindh, and then I came across in the Madho Dhund, in Upper Sindh, a flock which, I should guess, contained some thousands. In an early number I hope to produce a paper on the pelicans of India, and shall at present therefore say nothing further about them.

1004.—*Pelicanus philippensis*, Gmel.

I saw a few, and only a few, of this species in Sindh.

1004 *bis.*—*Pelicanus crispus*, Bruch.

I have already noticed how wonderfully abundant this species is in Sindh and along the whole Mekran Coast. This is the pelican that the fishermen on all the inland waters keep tame. As with the herons, so with the pelicans, they generally sew up the eyes, and fasten them by a string tied to the leg to the roots of some bunch of rushes or a stake driven in below water level. They thus serve as decoys to other water-fowl who, knowing how wary pelicans usually are, readily settle where they see one or more of these birds sailing slowly about backwards and forwards, and are thus netted or captured in other ways. These pelicans serve the fishermen, who are fowlers also, in another way: they skin them carefully, and cutting away the abdomen, in fact the greater portion that would be below water-level in the live bird, line the skin with a frame of thin basket work. They are very clever in mounting the birds, especially in dyeing the pouch and coloring it with turmeric so as to look exactly as in the live bird, and also in imitating the eyes which they manufacture out of lac. When ready, the fisherman places it on his head, gets into the water, and progresses slowly and softly, making the skin which conceals his head, sail about in the water in the most natural way imaginable, until he reaches the spot when some of his blinded and tethered pelicans are sur-

rounded by wild water-fowl which he adroitly pulls under water without in the slightest disturbing the rest. Sometimes we were told he drags with him a piece of double rope, twisted, with a stone or weight fastened to it ; each bird as it is caught has the neck thrust between the twists of the rope, and thus as many as twenty will be captured at a single trip ; some have a light cord fastened round the loins, between which and their bodies they thrust the neck ; in either case they kill the duck almost instantaneously by a sharp twist of the neck. I never myself saw the ducks thus caught, but a man put on the pelican helmet, and made it sail about before me in such wise that, even when quite close, it was difficult to believe that it was not a living bird.

1005.—*Graculus carbo*, L.

The common cormorant was abundant in Sindh. Small parties were occasionally noticed the whole way down the rivers Jhelum, Chenab, and Indus from Jhelum to Kurrachee. I saw a few also in the Muncher lake. Everywhere along the Mekran Coast they were abundant, and on the 23rd February, I shot and preserved a very fine male at Muscat in almost full breeding plumage. Does any body know where these birds breed in India ? For ten years at least I have been on the look-out for their eggs, but entirely without success, though I have been told that they breed on rocky islands and also on trees near Mhow Burriaree in the Jumna, about thirty miles north of Allahabad.

1007.—*Graculus melanognathus*, Brandt. —*G. javanicus*, Horsf.

The little cormorant swarmed in all the inland waters of Sindh. Unlike the larger cormorant, I never saw it on the sea coast.

1008.—*Plotus melanogaster*, Penn.

I did not preserve any specimen of this species ; but I saw it, though not often, in some of the larger inland lakes, and I met with one specimen seated sunning itself, with wings extended, on a large rock, in the Nurreenai, just inside the hills.

A. O. H.

Notes upon some of the Indian and European Eagles.

BY W. EDWIN BROOKS, C. E.

In a former short paper on the Imperial Eagles of India (Pro. As. Soc. 1872, p. 64,) I noticed three species.

I.—AQUILA ADALBERTI, Brehm., the Western European species, which I erroneously termed *Aquila imperialis*, Bechst.

II.—AQUILA MOGILNIK, Gm., to which I applied Hodgson's more recent name of *Aquila crassipes*; and

III.—AQUILA BIFASCIATA, Gray and Hardwick.

The above three very distinct species are all European, and two of the three are found in India.

1. AQUILA ADALBERTI, Brehm., appears to be restricted to Western Europe, and probably North-West Africa. I understand from Messrs. Gurney and Howard Saunders, that the terms, *mogilnik*, Gm., and *imperialis*, Bechst, do not apply to this species, which not only has white scapulars, but also white along the ridge of the wing from carpus to the body. The immature bird of this species is also not lineated, but is said to be a plain tawny-brown bird. In this plumage it has sometimes been confounded with *Aquila naevioides*.

2. AQUILA MOGILNIK, Gm., *Aquila imperialis*, Bechst., *Aquila heliaca*, Savigni, is the true *Imperial eagle* common to both Continents, and extends as far east as China.

The old bird is of a very dark black brown, has a cream colored or buff head and upper neck; black brown throat, and lower neck, as well as the rest of the body, save the grey barred tail with broad black terminal band. Like the western species, it also has white scapulars, when fully mature, to a greater or lesser extent, dependent probably upon age. The immature plumage of this species is lineated, there being a central fulvous stripe on most of the body feathers. That this striated stage passes into the old black brown bird, is clearly proved by the two changing specimens presented by Mr. A. Anderson, of Futtehgurh, to the Norwich Museum. To these I added young and adult examples so as to form a very complete and beautiful series. To look at this series, the impossibility of introducing an example of *Aquila bifasciata*, a species long confounded with *Aquila mogilnik*, is apparent.

3. AQUILA BIFASCIATA, Gray and Hardwick. The plain brown Imperial eagle, which, when immature, has two fulvous wing bars.

I ought to have termed the final addition of a buff or fulvous occiput, the third stage.

This eagle is often quite as fine and robust as *Aquila mogilnik*, but it is never black-brown, and never obtains white scapulars. The general tone of color in mature examples is earth-brown, or "soil brown," according to Mr. Hodgson. His drawing No. 934, perfectly represents the adult stage. By European ornithologists it has been confounded with *Aquila naevioides*. Captain Elves, in the *Ibis*, 1870, page 67, calls it "the dark form of the tawny eagle (*A. naevioides*)," and he has kindly forwarded to me an example of which Mr. Gurney says, "notwithstanding the remarkable difference of coloration in each of the three specimens, they agree so closely in other respects that (greatly against my preconceived opinion) I am now disposed to look upon them as all belonging to the same species, viz., *Aquila naevioides*, of Cuvier. I moreover discovered in the eagle from the Bosphorus, two small scapular feathers which I had previously overlooked. These confirm me in this opinion, as they are parti-colored, a portion of the feather being purplish brown and the other portion being rufous, which is an especially characteristic form of coloration in the typical African adults of *A. naevioides*. This, I think, shews that the Bosphorus birds are not in adult dress; and I may, with reference to my former opinion that they belonged to a distinct species, add that *I never before saw any specimens of A. NAEVIOIDES in the same plumage as these eagles obtained on the Bosphorus.*" *Ibis*, 1870, pp. 67 and 68. The italics are mine. Captain Elves in continuation remarks, "M. Alléon also thinks that *he has never obtained an adult specimen out of the large number he has seen*, and he has never met with any of a tawny color, &c.," *vide Ibis*, 1870, pp. 67 and 68. The italics again are mine.

Here we have the anomaly of a large number of tawny eagles not at all tawny, of a large number and not one adult bird! And Mr. Gurney says, he never saw examples of *A. naevioides* like them, and that he had been inclined to consider them as belonging to a distinct species.

Having the very specimen, Mr. Gurney speaks of, with the two little fulvous scapular feathers, I can very safely say it is a mature male example of *Aquila bifasciata*, Gray and Hard: with the characteristic buff occipital patch well developed. It has too, *the characteristic well barred grey tail of that species*. Apart however from plumage, the structural difference in the form of the nostril is always sufficient to separate *Aquila bifasciata* from *Aquila naevioides*. That of the former is long and vertical almost, while that of the latter is the most circular of any eagles with which I am acquainted. In dried skins, however, the nostril is sometimes distorted. In the present instance Mr.

Gurney overlooked this point, upon which he now holds the same views that I do; and he could not now recognize the Bosphorus bird as *A. naevioides*. There is also the additional difficulty of the totally different tail to contend with. As a rule the tail of *aquila naevioides* is not barred, but plain black, like that of *aquila naevia*. I have only seen one with the tail faintly barred and the bars were confined to the central portion of each feather. The tail of *aquila bifasciata* is always strongly barred in the adult bird to the very end, in a beautiful wavy manner characteristic of the species.

That the sudden apparition of this eagle in Europe rather puzzled so good an authority on raptors as Mr. Gurney, is not to be wondered at. The fact of its occurrence in Europe is however very interesting, and I have sent Mr. Gurney a very fine series from youth to age for the Norwich Museum. From all I can learn this eagle is common in Eastern Europe; where, as in India, it appears to be a migratory bird. The example sent me by Capt. Elwes is quite mature, and I don't think Mr. Alléon will ever meet with one more mature. I have the specimen safe, and any one who doubts the occurrence of this species in Europe, can examine it for himself and be convinced. I do not think much of the two parti-colored feathers. This want of color may be merely accidental, for young examples have no fulvous feathers except the wing bars and the tip of the tail. The two feathers are in the scapular region, and whether this species ever obtains buff scapulars, corresponding with the snow white ones of *Aquila mogilnik*, is a theory not worth entertaining, I should rather think not. Young examples of *Aquila bifasciata* have the breast and abdomen, as well as the tibiæ, sometimes mottled with dull white. If this be a regular stage of the bird's plumage, I cannot tell. It may be only occasional and accidental. Mr. Gurney seems inclined to consider it a stage of the plumage. These white mottled examples are scarce. *Aquila bifasciata* is an abundant eagle in India, though perhaps less abundant than *Aquila mogilnik*. The latter breeds sparingly in the Punjab, but I have not heard of the other species breeding in India.

AQUILA NÆVIA, (J. F. Gmelin), the spotted eagle. Captain Elwes has also obligingly sent me a fine pair of this species, killed by himself in Turkey. They are in the well known spotted plumage shewn in the wood-cut of Yarrell's British birds. One has the wing $19\frac{1}{2}$ inches long, while the wing of the other is $19\frac{1}{4}$ inches long. I need scarcely observe that they are identical with Indian examples, and I can match the pair to a feather, and also in dimensions with Indian killed specimens.

The idea therefore that *Aquila naevia* of Europe is a distinct species from the Indian one, must be given up. In eagles, the range as regards size is excessive, and examples of *Aquila bifasciata* and *Aquila mogilnik* shew far greater variation as regards size than the spotted eagle does. The greatest variation is to be found in *A. bifasciata*.

As far as I can ascertain, it appears very probable that European ornithologists have in speaking of the spotted eagle, confounded two very distinct species, viz., *Aquila naevia* and *Aquila hastata*. Both birds, when not mature, have spotted wings. I have a specimen of *Aquila hastata*, an adult bird, sent to me by Mr. Dresser, which he assured me was killed near Danzig. It was sent as *Aquila naevia*. That it is undoubtedly *hastata*, I am quite sure; for there are certain peculiarities in the coloration of the plumage present in this specimen, which are characteristic of the species. The upper tail coverts decided me, even if I had not found a perfect correspondence in every other respect. To this conclusion I must adhere till the specimen is shewn not to be *Aquila hastata*. That the specimen is European, the get-up of the skin shews, even if Mr. Dresser did not know it to be European, beyond doubt; *Aquila hastata* is therefore a European bird. Among the specimens of eggs of "spotted eagles" which I have seen in England, obtained from the Continent, I saw many of a rather small size, and very broad in proportion to the length. I have no doubt that these were all eggs of *Aquila hastata*. Mr. Hume and I have obtained genuine eggs of the latter species with the old bird shot off the nest. We have also genuine eggs of *Aquila naevia* authenticated in the same manner, and the egg of the latter bird is larger and longer in proportion than that of *Aquila hastata*.

Apart from the Danzig skin, from the European eggs alone which I have seen, I concluded *Aquila hastata* to be European, the correctness of my conclusion, further research will shew.

The mere fact of my being positive is doubtless not conclusive, but the bird killed near Danzig is eminently so, and I keep it open to examination by any one inclined to be sceptical. That *Aquila hastata* has for years been doing duty both by egg and skin for *Aquila naevia* in European cabinets is rather ludicrous, but such I believe to be the case, and I long for the opportunity of ransacking a number of good European collections to find out how many examples have been misnamed: Messrs. Gurney, Tristram, and Dresser are however now familiar with the two Indian eagles, *A. hastata* and *A. bifasciata*, and they will be able, if opportunity offers, to find out all the amusing blunders with the skins; but the unfortunate "spotted eagle's"

eggs are beyond a joke, and the eggs for which I paid long prices years ago, are now only fit to be thrown away, since I cannot tell which species they belonged to.

Novelties?

In putting on record the few following supposed new species, it may be well again to remind my readers that our Indian libraries are very defective, our museums even more so, and that it is impossible for us here to make certain that any species new to us, may not have been already described elsewhere, from specimens obtained beyond our limits; the birds are however new to our Avifauna, and of such, even should they prove in any case not to be new to science, a careful original description such as we give in every case can scarcely fail to be useful.

Collocalia innominata, Sp. Nov.

Wing, 5.5. A well marked blackish brown cap; wings and tail, black; rest of upper parts, sepia brown; lower surface, mouse brown.

That this edible-nest swiftlet has been described or intended to be described, under one of the many names now ranked as synonymes of *fuciphaga*, Thunberg, is not impossible, but it certainly is not admitted as a distinct species at present, and that it is so, is clear. In the diagnosis I have described, our bird (which is from the Andamans) and need only add under this head that in the flesh the length is 5.25 and the expanse 12.

Now this is not *fuciphaga*, Thun., of which the following is the original description. (Trans. A. K. Stock.)

“*Corpus supra atrum immaculatum, vix nitens, subtus cinereum, vel sordide fuscum seu albidum a gula usque ad basin caudæ; pollices circiter quatuor longum.*” (Figured Rumphius Herb. Amb. VI., t. 75, f. 3 and 4.) Now our bird has the body in no sense black above but sepia brown, and the dark cap, moreover, is most conspicuous and could not have been overlooked. Moreover, it is distinct mouse-brown below, not grey or dirty white or dingy “*fuscus*,” and it is well over five inches long.

Again Thunberg goes on to say “*cauda rotundata, supra infraque atra.*” What the first two words may mean, I cannot tell, since all the four species of *Collocalia* lying before me now,

have the tail more or less forked, but in this species it is most markedly so. But as to the tail being black *below* in our bird, it is not even a *dark* brown.

It is not *nidifica* of Gray, which he himself identifies with *fuciphaga*, Thun.

It is not *brevirostris*, M'Clelland, from the Assam hills which, Horsfield, it is true, identifies with *fuciphaga*, but which I venture to suggest is neither more nor less than *Cypselus infumatus*, Selater, *C. tectorum*, Jerdon. The following is M'Clelland's original description: Pro. Z. Soc. 1839, p. 155, "*H. brevirostris supra nigricans, nitore olivacio, subtus fuscescens alis elongatis; cauda mediore subfurcata, rostro brevissimo*."

"This species agrees with *H. fuciphaga* in habit, in proportional length of wing and shortness of beak, and in colour above; but it is darker underneath, and more than one-third larger; entire length, six inches."

No one can compare *C. infumatus* with this description, and then become acquainted with the facts, *first*, that *brevirostris* is described from Assam; *second*, that no other similar bird was met with there by M'Clelland; *third*, that *infumatus* is very common in Assam and is the only bird at all approaching *brevirostris* that is to be met with there, without, I think, feeling inclined to accept this identification of mine.

It is not *unicolor*, Jerdon, from the Neilgherries, of which I have nine specimens now before me and which is perfectly distinct (of which more anon) alike from Thunberg's and our bird. It is almost needless to say that it is not *concolor* of Blyth, as this name was merely one applied by him to Jerdon's Neilgherry birds, before the genus *Collocalia* was separated by Gray, on the ground that Jerdon's name *unicolor*, as applied to a *Cypselus* was already pre-occupied by a Madeira species figured by Jardine and Selby, pl. 83. Blyth himself pointed out, J. A. S. XIV, p. 209, that on the institution of the genus *Collocalia*, Jerdon's name necessarily revived.

It is not *affinis*, Beav., which is of the *Linchi* type, and either identical with or nearly allied to this.

It is neither *hypoleuca*, *spilura*, or *neglecta* (supposing these to be all distinct, which I greatly doubt,) which belong all to the *esculenta*, L., type, with white at the base of the tail feathers.

It is not *leucopygia* or *uropygialis*, with snowy white rumps, and it is not *spodiopygia*, which also occurs in the Andamans and of which more hereafter.

It is not *trogodytes* well figured in Gray and Mitchell's Genera of Birds, pl. 19, the smallest perhaps of the whole group, and with a conspicuous white rump band.

Nor can it be *Hirundo vanikorensis*, Quoi et Gaimard.

"*Hirundo, tota corpore nigro; rostro minimo, recurvato; gula brunnea, caudâ longâ, subfurcatâ.*

"Petit espèce, longue de 5 pouces, remarquable par la longueur de sa queue et la petitesse de son bec; toute noire en dessus, d'un brun grisâtre sous la gorge et enfumé sous le ventre, le bec, quoique petit, est fort; la queue est légèrement échancrée. Provient de l'île Vanikoro." Voyage de l'Astrolabe, vol. 1, p. 206, pl. 12, f. 3.

I cannot get hold of the Pl. En., where it is figured, but so far as can be made out from the brief description, it is not *francica*, Gm.

I must confess ignorance of *Forsteri*, Hartl., and *leucophæa*, Peale, but as these seem peculiar to Otaheite and Tahiti, and the latter must have some white or albescent about it, it is not very unreasonable to presume, in the absence of accurate knowledge, that it is neither of these very doubtful species.

It is not, it seems to me, any of all these, and so far I believe it is "*innominata*"; *si quid rectius, &c.*"

Besides this, we have at the Andamans the little swiftlet, called *affinis* by Beavan and Tytler, which either is, or is closely allied to *Linchi*; wing from 3·82 to 4, above glossy greenish black; breast and chin, grey brown; abdomen, white; the feathers more or less brown shafted.

Then we have also *spodiopygia*, Peale. "*Tota fuliginosa, supra saturator, uropygio ténia transversa lata cinerascenti, alba;*" Wing 4·5; obtained from the Samoan and Fiji islands.

Our Andaman specimen measured in the flesh, length 4·5; expanse, 10·8; wing, 4·6. Upper surface uniform deep or intense smoky brown, with a conspicuous brownish, albescent band on the rump; below a smoky mouse-brown; wings and tail, black.

Should this chance to prove distinct from Peale's bird, which I do not at all expect, it may stand as *inexpectata, nobis*!

As for the birds we get on the Neilgherries, these differ from all the preceding; they resemble *innominata*, but are much smaller; wings 4·3 to 4·6; have the whole under-surface a grey brown and the upper surface, intermediate between sepia and mouse-brown, and *no dark cap*, though the head is slightly darker. These must stand as *unicolor*, Jerd. Very likely the true *fuciphaga* will turn up at the Andamans, but I have not yet received it.

Mr. Ball surely errs in saying that the consensus of ornithologists is in favour of *fuciphaga* and *linchi* being identical. No two species can well be more distinct.

My only doubt about *linchi* being actually *identical* with *affinis*, Beavan, arises from the fact that Horsfield in describing the former (Lin. Trans, XIII., p. 143,) under the name of *fusciphaga* (he corrected the error and named the bird *linchi*, later. Catalogue, E. I. C's Mus., p. 100) gives the length at 5 inches.

Now out of a large series of the Andaman birds measured in the flesh, none exceeded 4 inches, and they varied in length from 3·75 to 4. The 5 inches is probably a misprint.

Brachypodius fuscoflavescens, Sp. Nov.

Resembles B. melanocephalus, but wants the well-marked black head and has the whole upper surface suffused with a dusky olive tinge.

Dimensions.—Male, length, 6·7 to 7·1; expanse, 9·5 to 10; tail from vent, 2·8 to 3·2; tarsus, 0·55 to 0·65; wing, 3 to 3·2; wings, when closed, reach to within from 1·9 to 2·1 of end of tail; bill from gape, 0·8 to 0·9. The female slightly smaller; length from 6·5 to 6·8; expanse, 9 to 9·7 and so on.

Description.—Legs and feet, plumbeous; bill in some, plumbeous blue; the upper mandible tipped and edged with black, in others nearly all blackish, but paler and bluer at the base; irides, pale blue!

The whole bird, except the wings and tail, yellow, (very bright on the abdomen, vent and lower tail coverts,) *somewhat* infuscated on the breast, and *strongly so* on the upper parts, with a dusky olive tinge. The feathers of the chin and upper throat with a blackish purple metallic gloss, and the feathers of the crown with more or less of traces of the same. The basal portions of the rump feathers are black, which, here and there, showing through the broad yellow tippings, produce a more or less barred or mottled appearance. The tail is tipped, most broadly so on the laterals, with bright yellow; has a broad dark brown subterminal band, and is olive yellow towards the base. The whole visible portion of the closed wing is the same, somewhat dusky olive yellow, as the whole upper parts (except the rump which is yellower), but the inner webs of the quills are dark hair brown, with a narrow pale yellow stripe along their inner margins, towards the base only in the earlier primaries, but gradually extending, as the feathers recede, till in some of the secondaries it reaches quite to the tips.

The females are somewhat darker and greener, or more olivaceous, both on breast and upper parts, than the males.

This is, I believe, the bird which, with only a single specimen before him, Mr. Ball thought might be the young of *B. melanocephalus*, but with three males and two females, all good specimens, and all apparently adults, to judge from, I think there can be no doubt, that we have here a distinct, though doubtless representative species.

This bird appears to be common about Port Mouat and Mount Harriet in the Andamans.

Pellorneum minor, *Sp. Nov.*

Very similar to P. ruficeps, Swainson, and P. Mandellii, Blanford, but smaller ; wing, barely 2·5 ; bill at front, 0·5, and slender.

This new species of *Pellorneum* which I received in a collection of birds from Thayetmyo, from Capt. Feilden, makes the sixth (or perhaps more properly the fifth) species of this genus, with which I am acquainted. These are first *P. ruficeps*, Sw., of Southern India, (Jerdon 399, vol. II., p. 27), second *P. Mandellii** Blanford, (J. A. S. B., 1872, vol. XLI., p. 165).

Thirdly, we have the present species which closely resembles

* As the Indian Ornithologists Library usually begins and ends with Jerdon's birds of India, I propose, whenever mentioning for the first time birds occurring anywhere in India or its dependencies not described by Dr. Jerdon, to give descriptions of these. Mr. Blanford thus described *PELLORNEUM MANDELLII*.

P. peraffine, *P. ruficeps*, Swains., *sed staturâ minori, collo postico et laterali maculis fuscis magnis signato, maculis pectoralibus majoribus et saturatioribus*. Long. alæ, 2·65 ; caudæ, 2·5 ; tarsi, 0·95 ; rostri a fronte, 0·6 ; a rectu 0·75 unc.

Crown of head and nape, ferruginous ; lores, over and under the eye, pale pinkish isabelline ; most of the feathers of the forehead, lores, and supercilia with slight dusky tips ; ear coverts, pale rufous brown, also with dark tips ; back of the neck isabelline, or pale brown, each feather with a large dusky spot, frequently confined to one web ; mantle and tail, brownish olive, all the rectrices except the centre ones with narrow pale tips ; quills hair brown margined with brownish olive externally, internally, like the lining of the wing, pale brown. Chin and upper throat, pure white ; remainder of lower parts, isabelline ; breast and sides of neck with large elongated dusky spots ; flanks also spotted, but the spots are paler ; abdomen, unspotted. Bill, dusky above, pale below ; legs very pale coloured.

This species differs from *P. ruficeps*, Swains., and *P. Tickelli*, Blyth, (J. A. S. B., 1859, Vol. XXVIII., p. 414 ; = *P. subochraceum*, Swinhoe, A. and M. N. H., April, 1871, p. 257), by having the neck spotted all round and by the spots in front being much deeper and darker. In size, it resembles *P. Tickelli*, being smaller than *P. ruficeps*.

the two preceding in the general tone of plumage; but which has a bill as slender as *ruficeps*, and considerably shorter than that of *Mandellii*. This forms one sub-group.

Then we have fourth *P. palustre*, Jerdon, recently described by myself, Stray Feathers, No. I., p. 4, and I understand figured by Mr. Gould's Birds of Asia, pt. XXIV. Fifth *Pellorneum Tickelli*† Blyth, J. A. S. B., 1859, vol. XXVIII., p. 414, from Amherst, Tenasserim Provinces, and sixth, *P. fuscocapillum*‡ Blyth, J. A. S. B., 1849, vol. XVIII., p. 815, which latter should however, I think, remain under *Drymocataphus*.

Our present bird is about 5·5 in length; wing, 2·45; tail from vent, about 2·5; bill at front, 0·5; tarsus, 1; exterior tail feathers, 0·55, shorter than central ones.

Bill, upper mandible, blackish brown; entire lower mandible, fleshy yellow.

Chin, throat, middle of abdomen, pure white; a band across breast, sides and flanks, fulvous; the feathers with narrow central brown streaks, paler, and less numerous than in either *ruficeps* or *Mandellii*; forehead, crown of the head, and occiput, chesnut, paler

† Mr. Blyth thus described:

"*PELLORNEUM TICKELLI*, nobis, n. s., smaller than *P. ruficeps*, but absolutely typical in structure; colour uniform brown above, much paler and tinged with rufous below; the middle of the belly, pure white; frontal and loreal feathers, pale centred, more or less. Upper mandible, pale dusky, the lower, whitish or probably pale corneous, as are also the legs; irides, sepia; length, $5\frac{1}{2}$ inch; of wing, $2\frac{1}{2}$ inch, and tail 2 inch; bill to gape, $\frac{3}{4}$ inch, and tarsi 1 in.

Col. Tickell, the discoverer of this bird, but whose specimens arrived in Calcutta a mail before his paper describing them, and which Mr. Blyth through some mistake proceeded to name and publish at once, thus describes the same species.

"Spec. Male Woods of Teewaphado, 1,100 to 1,500 feet. February 24th, 1859.

Dimensions.—"Length $5\frac{1}{2}$ inch; wing, $2\frac{1}{8}$ inch; tail, $2\frac{1}{8}$ in.; bill, $\frac{1}{2}$ inch; tarsus, 1 inch; mid toe, $\frac{1}{10}$ in.

"*Details*.—"Typical, but it carries a straighter and better raised tail than the type *M. chloris*, which gives it a more Sylvian than Timalian look.

"Color. M. and F.; iris, blood red brown; bill horny, with dusky culmen; legs and claws, fleshy horn. All upper parts, reddish olive-brown; wing and tail quills, burnt umbre-brown; edge reddish. Frontals and face, paler and tinged fulvous. All lower parts from chin, clear pale fulvous, mesially albescent except on breast.

"Not uncommon in the hill forests, frequenting bamboos and underwood; manners active and restless—silent"

‡ The Ceylon species *PELLORNEUM FUSCOCAPILLUM*, Mr. Blyth thus describes:

"Like *Drymocataphus nigrocapitatus*, but the supercilia, uniform with the lores, ear-coverts, sides of neck, throat, and entire underparts, pale ferruginous-brown, a little deeper on the breast; coronal feathers, dark brown, margined with dusky-black, and pale-shafted; rest of the upper-parts, uniform greyish olive-brown; the primaries margined paler, and the extreme tips of the tail feathers rufescent. Bill, pale; the upper mandible dusky, and feet pale. Length about $6\frac{1}{2}$ in.; the wing $2\frac{3}{8}$ in.; and tail, $2\frac{1}{2}$ in.; bill to gape, $\frac{1}{3}$ in.; and tarsi 1 in.

"Inhabits Ceylon."

than in either of the other two species; a long well marked rufous white, or pale rufescent stripe from the nostrils to the nape; lores, slightly darker; ear coverts again darker, but not nearly so dark as in *Mandellii*; sides of the head behind ear coverts and nape, olive brown, margined more or less broadly on one web with rufescent or buffy white; the occipital and nuchal feathers, a good deal developed as in *Mandellii*, so as to form a sort of occipital crest; the whole of the rest of the upper surface olive brown, somewhat paler than in *Mandellii*; the inner webs of all the quills dark hair brown, and the outer webs of the first few primaries somewhat paler and yellower; the wing lining rufescent white, and the lower surfaces of the quills with a salmon colored tinge on the inner webs as in *Mandellii*; lower tail coverts, olive brown, broadly margined with fulvous white; the lateral tail feathers very narrowly tipped with white.

This species at a first glance might be mistaken for *Mandellii*; but it has a bill about half the thickness of that of this species, and is quite unmistakeably distinct.

A new Genus of the Malurinae.

BLANFORDIUS.

Allied to Suya. The tail of twelve feathers; wings, with the fifth, sixth, and seventh quills, equal and longest; fourth, equal to eighth; third, nearly equal to ninth.

Blanfordius striatulus, Sp. Nov.

Female. Dimensions, from the dry skin: length, about 6; wing, 1.9; tail from vent, 2.75; bill at front, about 0.45; tarsus, 0.7. Legs and feet, pale fleshy; bill, brown pale fleshy on lower mandible.

Plumage; an obscure rufous white streak from the nostrils to the upper part of the eye. The whole upper parts, dull greyish olive brown (the grey preponderating on the head), all the feathers, except those of the upper tail coverts, conspicuously centred with dark brown. Wings, pale hair brown, all the feathers margined with pale rufescent olive; tail feathers, a sort of olive brown; the feathers with conspicuously darker, very stiff looking and glistening shafts; all the feathers obsoletely transversely rayed, the central ones most strongly so;

all but the central ones, narrowly tipped with fulvous white, and with an obscure subterminal dark band; on the under surface, the shafts are white. The ear coverts mingled fulvous and pale rufous brown, the sides of the neck streaked like the back; on either side of the throat descends from the gape for about half an inch, a band of tiny feathers, white, with minute dark centres, so as to produce the appearance of two or three irregular rows of little spots on each side of the throat; the chin and the centre of the throat, breast, and abdomen, white, tinged buffy on the two latter, and with all the feathers of the throat and breast very faintly and narrowly tipped with brown, so as to produce the appearance of a number of narrow faint transverse bars unlike anything I have seen in the Indian members of this family. The flanks, sides, vent, and lower tail coverts are tinged with dull olive brown, mingled with fulvous buff; the tibial plumes are fulvous buff, the wing lining is buffy white, and so are the inner margins of the inner webs of the quills as seen from below.

The bird that I have thus attempted to describe is one of some half dozen specimens shot by Mr. Blanford at Kurrachee when on his way to Persia, and kindly made over by him to me. It is in many respects a very remarkable bird, intermediate in many respects between *Suya* and *Laticilla Burnesi*, Blyth, which widely as Dr. Jerdon separates them, are really very closely allied, not merely in general appearance, texture of plumage, and the like externals, but equally so in habits and in their manner of creeping about in amongst grass and reeds.

I have carefully gone through the North African *Malurinae* as set forth by Rüppell, Heuglin, &c. I have also tried to satisfy myself that the bird does not belong to any known European or Indian species, and I cannot avoid considering it new and distinct, alike specifically and generically from any bird of which I can find a description. Only a single specimen, and that a female, was obtained. Moreover of this female the tip of both mandibles, and the tips of the two longest tail feathers are shot away, one wing also is altogether imperfect, so that it is not without great hesitation (although the specimen is a very good one in other respects) that I have ventured to characterize the species. I hope some of my friends in Sindh will search for, and endeavour to obtain for me additional specimens of this bird, which at a casual glance looks like a very bulky, dark and strongly striated specimen of *Burnesia gracilis*.

Carpophaga palumboides, Sp. Nov.

Tail much rounded; second quill longest; whole head and neck all round pale French grey; wings and tail, blackish; rest of plumage dusky slaty blue, the upper surface with in certain lights metallic reflections; green predominating about the back of the base of the neck and lilac purple elsewhere. Wing, 9.5.

This fine pigeon is from Port Mouat, Andamans. At first I thought it might be *insularis*, Blyth, but that I find is a mere variety of *sylvatica*, while this is not only totally distinct, so far as plumage goes from that species, but (though *not* white) belongs to a different sub-group, which Reichenbach separated as *Myristicivora*.

Of all the fruit pigeons I know it most nearly resembles *ænea*, Lin., but compared with a specimen from Borneo, it appears to me quite distinct.

I have only a single specimen and that is a female. The measurements recorded in the flesh were as follow: Length, 16.25; expanse, 29; tail from vent, 6.5; wing, 9.5; tarsus, 1; bill from gape, 1.5; wings, when closed, reach to within 2.5 of tip of tail; weight, 1 lb. 2 oz.

Back and sides of tarsi and toes, very pale fleshy pink; front of tarsi, bright red; soles, whitish; claws white; upper mandible and lower mandible to point of gonys, pale, whitish yellow; rest of lower mandible and cere, lake red; irides, orange, towards pupil, changing towards exterior margin to light red; naked orbital region, pinkish lake.

The whole head and neck all round, a pale, pure French grey, slightly palest on chin and throat. The whole of the rest of the lower parts, dark, dusky slaty blue, becoming blackish on lower wing and longest lower tail coverts; rectrices and their coverts, winglet, quills, and their greater coverts, blackish brown, the second to the fourth of the quills *very* narrowly margined on the terminal three-fifth of the outer web with brownish white; the rest of the upper parts (not already described) dusky slaty, almost black on the coverts, each feather with a more or less narrow terminal or subterminal band exhibiting in certain lights, pale green and purplish lilac metallic reflections, the green predominating about the base of the back of the neck, and on the coverts and the purplish gleam elsewhere. In one particular light a stripe of the inner webs of the primaries next the shafts, appears to glow with a golden brown lustre.

Mareca albogularis, Sp. Nov.

Allied to M. punctata, but smaller; chin, throat, and front of neck, white.

It seems to me that this Andaman widgeon is distinct from the Australian bird. It is certainly not Colonel Tytler's *Q. andamanensis*, which he has often told me was a true teal, with *blue* wings, and such a teal I venture to assert will surely turn up.

Of *punctata*, Schlegel gives the dimensions: wing, 8·2 to 9·1; the tarsi, 1·45 to 1·65; bill, 1·65 to 1·8. Our birds as will be seen are much smaller. Again, none of our birds have the conspicuous white spots on either side of the vent which all the descriptions of *punctata* that I can meet with dwell on. Is this perchance a seasonal sign, like the white thigh patch in the cormorants? The conspicuously white chin throat and front of neck, which characterizes all the seven specimens that I possess, is alluded to in no description, and is at variance with some. In all our birds the first secondaries are conspicuously margined, and all but the last two or three conspicuously tipped with white, in some slightly tinged with buff. No one mentions this peculiarity in regard to *punctata*. Schlegel, it is true says, "rectrices du second ordre voisines des tertiaires à barbe externe blanche," which as it stands is nonsense, but even supposing rectrices to be a mistake for quills, it is the secondary next the *primaries*, and not next the tertiaries, which is *edged* with white.

Any how if our birds are *punctata*, the descriptions I have hitherto met with are so imperfect and unsatisfactory, that it will be useful to have a more accurate record of its winter plumage.

Dimensions.—Males, length, 17 to 18; expanse, 24·5 to 27; tail from vent, 4 to 4·2; wing, 7·8 to 8; tarsus, 1·3 to 1·4; bill at front, 1·4; from gape, 1·8; wings, when closed, reach to within from 2 to 2·2 of end of tail; weight, 1 lb.

Females, length, 15·5 to 16; expanse, 24 to 25·5; tail from vent, 3·25 to 3·5; wing, 7·25 to 7·4; tarsus, 1·25 to 1·35; bill at front, 1·3 to 1·35; from gape, 1·65 to 1·75; wings, when closed, reach to within from 1 to 1·75 of end of tail; weight, 12 oz.

Description.—Legs and feet, greenish blue, to plumbeous; webs, usually darker; claws, horny; bill, plumbeous; nail black, in some the lower mandible tinged with, in one the terminal two-third of this, pink; irides, reddish brown to deep brownish red.

Top and back of the head and nape, dark umber brown; chin, throat, and front of the neck, white; face and sides of the head, brown; the lower parts of the cheeks and ear coverts more or less mingled with brownish white. *Some* specimens with a

conspicuous pure white, crescent along the lower margin of the eye, the point in front extending up beyond the gape; the lores where they abut on the upper mandible, also pure white, and a streak of white from the upper portion of the white lore patch to the upper point of the white crescent. The majority of specimens show nothing of this except a small white patch under the eye. Front and sides of the breast, upper abdomen and sides, each feather broadly margined with a warm brownish fawn colour, and centred hair brown. Lower abdomen, flanks, vent, and lower tail coverts, a dull dingy brown, more or less yellowish or fawny (except on the lower tail coverts,) and exhibiting, though indistinctly except in the case of these latter, darker centerings to the feathers.

This is in the presumably adult males; in the females and young birds the lower surface is duller and sandier than above described, and the centerings of the feathers are less marked and produce more of a mottled appearance.

The greater lower wing coverts are grey brown; the axillaries and the ends of the median secondary lower coverts, pure white, and the rest of the lower coverts dark, almost blackish brown. The primaries and their greater coverts, the winglet, and all the lesser and median coverts, a dark, hair brown, somewhat paler and with ever so slight a greenish gloss. The anterior secondary median coverts, and the ends of the posterior ones, a broad margin to the outer web of the first secondary and usually a narrow margin to the second, and a broad tipping to all but about the last three secondaries, white, more or less tinged with rufous buff, the rest of the outer webs of the secondaries velvet black, with a brilliant metallic green speculum on two or three of them from the seventh to the ninth, smaller and more coppery in the females. Back and scapulars, a rich brown with a faint purplish gloss, each feather narrowly margined with a pale rufescent; tertiaries, similar but paler, and wanting usually the paler margins. In the males and young, the brown is duller and the purplish tinge wanting. Rump upper tail coverts, and tail nearly synchronius with the back, but the first usually slightly darker and devoid of any purplish glance, and the second usually somewhat lighter than either the first or the third.

All these birds were shot in December.

A. O. H.

Additional remarks on the Avifauna of the Andamans.

Since Mr. Ball's paper was printed off, a collection of some 400 specimens from the neighbourhood of Port Blair, has been sent me up by my friend Mr. Davison.

This collection enables me to add the following twenty-one species to Mr. Ball's list:

39 *quat.*—*SPILORNIS PALLIDUS*, Walden, ? *S. Davisoni*. Sp. Nov. ?

103 *ter.*—*COLLOCALIA INNOMINATA*, Sp. Nov. cf. Supra. p. 294.

103 *quat.*—*COLLOCALIA SPODIOPYGIA*, Peale.

134.—*ALCEDO BENGALENSIS*. Gm.

457 *quat.*—*BRACHYPODIUS FUSCOFLAVESCENS*, Sp. Nov. cf. Supra. p. 297.

483.—*PRATINCOLA INDICA*, Bl. ? *P. albosuperciliaris*, Sp. Nov. ?

556.—*PHYLLOPSEUSTE MAGNIROSTRIS*, Blyth.

592.—*CALOBATES BOARULA*, Penn.

593 *quat.*—*BUDYTES FLAVA*, L.

780 *ter.*—*CARPOPHAGA PALUMBOIDES*, Sp. Nov. cf. Supra. p. 302.

834 *bis.*—*TURNIX MACULOSUS*, Tem. ? *T. albiventris*, Sp. Nov. ?

844.—*SQUATAROLA HELVETICA*, L.

849.—*ÆGIALITIS FLUVIATILIS*, Bechst, ? *Æ. philippinus* Lath ?

870.—*GALLINAGO HORSFELDII*, Gray, *G. Stenura*, Kuhl.

876.—*TEREKEA CINEREA*, Güld.

882.—*TRINGA SUBARQUATA*, Güld.

886.—*TRINGA PLATYRHYNCHA*, Tem.

928 *ter.*—*DEMIEGRETTA GREYI*, Gray.

930.—*ARDEOLA LEUCOPTERA*, Bodd.

934.—*ARDETTA SINENSIS*, Gm. ? *A. pulchra*, Sp. Nov. ?

963 *bis.*—*MARECA ALBOGULARIS*, Sp. Nov. cf. Supra, p. 303.

Of these however, three, viz., *B. fuscoflavescens*, *C. Palumboides*, and *M. albogularis* are the birds referred to as *B. melanocephalus*, juv, *C. insularis*, and *M. punctata*, by Mr. Ball; as I cannot at present concur in these identifications, I have described them as new, *loc. cit.*, and of these need say no more here.

The Andamans contain at least two utterly distinct species of *Spilornis*; the one, that described as *Elgini*, by Tytler, wing averaging 14.5 to 15 as a maximum; weight of an adult female, less than 2 lbs.; the whole under parts, a rich deep chocolate brown, much the colour of the young Moor Buzzard; chin, throat, and upper breast, wholly devoid of any markings whatsoever; the rest of the lower surface including the entire wing lining, under tail coverts, and tibial plumes, with conspicuous well defined oval or circular, pure white spots; bill, *pale* whitish or yellowish, or brownish horny, except just at the tip.

Is this *bacha* of Daudin? That *bacha* occurs in the Andamans is certain, because two specimens sent to the Zoological Society

by Col. Tytler, though presented through some mistake in Mr. Grote's name, were repeatedly examined in life, and one of them after death, by Mr. Gurney, who definitely pronounced them to be *bacha*.

This however is not absolutely conclusive as to *Elgini* being *bacha*, because there are certainly two species in the island and there *may* be three.

I can not get hold of either Daudin's *Traité d'Orn.* &c. (II., p. 43) or Levaillant, *Ois. d'Afr. I.*, p. 68, pl. 15, on which Daudin founded his name.

Horsfield's *F. bido* is generally identified with Daudin's *bacha*, and Horsfield himself concurred in this. *Cat. E. I. C.'s Mus.*, p. 49. Horsfield's description *Lin., Trans. XIII.*, p. 137, runs as follows :

"F. fuscus, capite supra remigibus caudaque nigris; plumis cristæ capitis atris basi albis; cauda fascia lata albida, alis subtus abdomine crisso cruribusque albo guttatis. Longitudo 24 ad 26 poll."

This appears to me to agree fairly well with our birds.

Swinhoe, *Ibis*, 1870, p. 86, and Walden, *Ibis*, 1872, p. 364, give between them the dimension of eleven specimens of *bacha* from India (?) Ceylon, Malacca, Java; wing, 14.75 to 16; tail, 9.8 to 11; tarsus, 3.25 to 3.87; mid toe to root of claw, 1.75 to 2.

These dimensions seem somewhat in excess of ours, but not sufficiently so, to make me doubt that *Elgini* is really *bido*, Horsf., or (*if bacha* is certainly = to *bido*) as it should stand *bacha*, Daud.

The second species is of a different type, in fact a miniature (with some not very important differences) of *S. cheela*, Lath. It is about the size of *bido*, with the wing of the female 15. A pale brown beneath, with throat and breast finely barred with darker zig-zag lines; the tibial plumes much more coarsely and strongly barred; the abdomen much as *cheela*. The edge of the wing from the base of the primaries to the carpal joint and the under surface of the wing for an inch inside this margin, between these points, pure white; bill, *brown*.

Length in the flesh, of the female, 24; wing 15, against length, 29; wing, 21, in the same sex of *cheela*; at first I thought this might be *Rutherfordi*, Swinhoe, (*Ibis*, 1870, p. 86,) but this I find has a wing (in adults) of from 16.5 to 17.75.

It is not *spilogaster*, Blyth, which he distinctly says is only *slightly* smaller than *cheela*; moreover, I have numerous specimens of what both Mr. Blandford and I identify as *spilogaster*, from Southern and Central India, and Raipoor, chiefly distin-

guished from *cheela* by the barrings of the throat and breast, being almost, (or quite in some specimens) obsolete, and by its smaller size, wing varying from 17 to 18. It is quite clear, I think, that *spilogaster* is distinct alike from *bido*, and from our bird.

I had named this latter, *S. Davisoni*, after my zealous and enthusiastic curator, and entertained no doubt of its being new, but in the last Ibis, Lord Walden (1872, p. 363) describes two young birds which, if I understand him, are of the *cheela* and not the *bido* type, (with wings 12.62 and 13.25,) under the name of *pallidus*, which might possibly, be the young of our Andaman bird.

My only specimen is an adult, and consequently it is impossible to institute an accurate comparison with Lord Walden's descriptions, but so far as any comparison is possible, the birds disagree.

It is of course not *S. rufipectus*, Gould (*Circaetus bacha celebensis*, Schlegel,) a small bird, wing 12 or 13, with, in the adult, a blackish chin and throat; breast, a brownish cinnamon colour, unbarred, and the rest of the lower parts, a somewhat rufous brown, broadly and regularly barred with white.

It is not *S. holospilus*, Vigors, P. Z. S., 1831, p. 96, Gr. and Mitch., pl. 7, distinguished at once by its profusely spotted mantle.

Nor would it seem to agree with *S. salaenses*, Schlegel Valk, V. T. 23, 4, 5, 6. If therefore it is not *pallidus*, Walden, which I hardly think, it must stand under the above suggested name of *Davisoni*.

The Collocalias I have already fully discussed (cf. supra., p. 294).

Alcedo bengalensis appears to be even more common than *asiatica*, though several specimens of both are included in the collection.

The *Pratincola*, I believe to be *indica*; only a single specimen however has been sent, and that seems to differ a good deal, from any of *indica* which at the moment, away from my museum, I have available for comparison, notably in the very long broad and conspicuous whitish superciliary streak; if distinct, it may stand as *albosuperciliaris*.

I cannot make sure (the birds are in the winter plumage, and I have no others at hand) whether the little shore plovers are *fluviatilis*, or *philippinus*.

Gallinago Horsfeldii (stenura, Kuhl.) appears common. Query, has not this hitherto done duty for the common snipe? Does the latter really occur in these islands?

Demiegretta Greyi; by this name I intend to signify the

white allotropic form of *jugularis*, Fors., or as Mr. Gray gives it, *sacra*, Gm. This form has been said to be the young of this latter, but Col. Tytler took numbers of young *sacra*=*jugularis*=*concolor*, Blyth, from the nest and kept them for months and assured me that they were slaty dusky *ab ovo*.

The bird is usually mistaken, I believe, for *garzetta* or *egrettoïdes*, but the bill is stouter and deeper, especially towards the points, and the tarsi are only three inches in length. In fact it is a pure white facsimile of *sacra*. Is it a distinct species? It is not a mere accidental variety, or albino, or anything of that kind, for it appears to be quite as numerous, if not more so than the dark form.

The little heronet which I have called *sinensis*, may be possibly a new species and might be characterized thus :

Very like A. sinensis, Gm., *but slightly smaller; the whole back, scapulars, and tertiaries, deep cinnamon rufous, edged with golden buff and the whole chin and throat pure white, with a narrow well defined central golden buff streak and a broad dark brown pectoral band.*

But is it really distinct from *sinensis*? It is certainly an intensely brightly coloured version of that species, with a strongly defined central throat stripe and a broad band of the deepest brown feathers from the sides of the breast across the upper abdomen. It is in some respects affined to *cinnamomea*, Gmel., but is if anything smaller than *sinensis* even. Looking to the extreme improbability of getting a new species of this genus from the Andamans when *sinensis* extends from Southern India to the Ladrones, I have identified it with this latter species; but the colours of the upper parts, to say nothing of other differences, will not agree with those of any specimens of *sinensis* that I have seen. Jerdon says of this latter species, "back and scapulars, pale earthy or sandy brown; wing coverts and tertiaries, pale isabelline fulvous." Schlegel says, "le mâle adulte a le dos et les scapulaires, d'un brun-rougeâtre tirant au gris" and these two descriptions seem to me to cover all the variations in plumage that I have yet met with in *sinensis*. I assume for the present that it is a young freshly moulted bird of this species (which I have but seldom shot and with whose variations in plumage I am therefore less familiar) but if so, the stage of plumage it exhibits is one worthy of record.

Length, about 13; wing, 5.1; bill at front, 2.1; tarsus, 1.7. The whole top of the head, back of the neck, back scapulars, tertiaries, and the lesser coverts along the ulna and about the carpal joint of the wing, deep cinnamon rufous; the feathers of the crown, centred darker, and a small short occipi-

tal crest, almost black; the feathers of the back, scapulars, and tertiaries margined with golden buff. Quills, winglet, primary greater coverts, tail, black; rest of coverts (excluding those previously mentioned, as rufous) golden buff. Edge of wing and entire wing lining, white. Sides of head and neck, golden buff. Chin, front of throat, and neck, pure white, with a narrow central bright buff streak. Breast, pale buff, streaked with brighter and deeper buff. A broad band of deep brown feathers, narrowly margined with buff, beginning at the sides of the breast traverses the upper part of the abdomen, but is partially concealed by the overlapping of the breast feathers. Rest of abdomen, pale buff; vent and lower tail coverts, buffy white. Legs, feet, and bill apparently pure yellow. If distinct, which I cannot well believe, let it stand as *pulchra*, nobis.

Æ. mongolicus, of which Mr. Ball was doubtful, is common at the Andamans, and *Calenas nicobaricus*, in regard to the occurrence of which at the Cocos, he expressed surprise, considering it essentially a Nicobarian bird, was also met with.

As regards the Andaman *Otocompsa*, I should say it was not the true *jocosa*, L., which is a Chinese bird, but the Bengal and Oudh *emeria*, Shaw, which as Hodgson's drawings show is his *pyrrhotis*. At the same time it is to be noted that the Andaman bird has the ear tuft and the crest somewhat shorter, and is a somewhat smaller bird. However, after comparing some thirty specimens from the islands with a similar number from Calcutta, Dacca, the Terai, the Western Doars, Oudh, &c., I see no grounds for separating them. The southern form *fuscicaudata*, Gould, distinguished at once by the absence of white tippings to the lateral tail feathers, reaches as far North and West as Mount Abo.

There is a nearly allied species from Assam, *monticola*, McClell., P. Z. S., 1839, p. 160, which differs in having a scarlet ring about the eye, but no red tuft beneath this organ. Mr. Blyth says, Ibis, 1867, p. 8, that *monticola* differs from *emeria*, in having a shorter crimson ear tuft of a much deeper colour and the feathers composing it are more rigid and wiry, but Assam specimens agree with McClelland's description, have red round the eye, and no regular tuft.

I think it not impossible that *L. lucionensis* has been confounded with *cristatus* by authors, who have given the latter from the Andamans. It may very likely occur there, but Tytler's specimen, the only one I ever saw of his from the Andamans, was a young *lucionensis*.

The *Pericrocoti* that I have received from the Andamans were certainly not *speciosus*; I identified them with *elegans*, McClelland, P. Z. S., 1839, p. 156, a bird more of the *flammeus* type,

which I have from Thyetmyo; but they may be *ardens* of Boie, which I have not seen.

The Andaman pipit is, I think, the true *cervinus*, Pallas, the eastern form, distinguished from *Cecilii*, Aud., vel. *rufularis*, Brehm, by its smaller size and by the colour of its breast and superciliary stripe, which are pinker in the eastern and more rusty in the western form; *rosaceus* of Hodgson is at once distinguished from both by its yellow axillaries.

Buchanga andamanensis is, I think, a very good species with its sharply carinated bill and its long bristle-like feathers springing from the upper edge of the nares, on either side of the base of the culmen. These are very conspicuous in fine specimens.

Grancalus Dobsoni, is very distinct from our Indian birds, but is it so from *concretus*, Hartlaub, and *fasciatus*, Vieillot, neither of which I have seen?

The *Munia*, very common in the islands, may be *leuconota*, Tem. It certainly is not the southern indian *striata*, L., with which the latter has usually (but I think wrongly) been identified, as the birds do not show any white shafting whatsoever to the feathers of the upper back.

The koils are very puzzling. One of the females is coloured like *Ransomi*.

Of *Spizaetus andamanensis*, I can only say, that one sent me might have sat for Gould's figure of *S. alboniger*, Blyth, if only it had a crest, which it hadn't.

The little tringas, sent are all true *minuta* (cf. supra p. 242.)

A turnix sent appears to be a new species, close to *maculosus*, but with a perfectly white abdomen, but the specimen is an indifferent one, and I have only provisionally suggested for it the name of *albiventris*.

In conclusion I must remark that so far as I have investigated it, the connection of the Avifauna of both the Andamans and Nicobars, is rather with India and Sumatra, than with India and Malayana Proper.

A. O. H.

Spizaetus Kienerii, De Sparre.

THE RUFOUS-BELLIED HAWK EAGLE.

Since I published the first part of my Rough Notes, several specimens of this very handsome bird have come under my observation, and I think that a full description of an adult with dimensions recorded in the flesh can scarcely prove useless;

the bird is so rare in collections, that I doubt whether any thing of the kind is on record.

This species was originally described from the Himalayas, and I am by no means sure that specimens obtained elsewhere which at present do duty for *Kienerii*, really belong to it.

The bird I propose to describe was an adult female, in magnificent plumage, and contained three large eggs, one in the oviduct, nearly ready for expulsion; it was shot near Darjeeling on the 8th November, at a height of about 6,000 feet.

Dimensions.—Female, length, 24; expanse, 50; wing, 17·5; the third and fourth primaries the longest; the first, 5·1, the second, 0·3 shorter; tail from vent, 10; exterior tail feathers, 0·7 shorter than central ones; tarsus, 3; hind toe, 2·3; its claw straight, 1·18; hind toe, 1·45; its claw straight, 1·52; inner toe, 1·5; its claw, 1·5; bill straight from margin of cere, 1; do. along curve, 1·2; from gape, 1·5; width at gape, 1·1; height at front at margin of cere, 0·65; length of cere only, 0·45; wings, when closed, reach to within 4 of end of tail; lower tail coverts fall short of do., by 4·2.

Description.—Feet, yellow; claws, black; cere, yellow; bill, leaden blue; irides, brown.

Plumage.—The whole of the top and sides of the head, including the lores, cheeks, and ear coverts, the back and sides of the neck, the back, scapulars, rump, and upper tail coverts, and lesser and median wing coverts, a nearly uniform blackish brown; the feathers all with more or less of metallic reflections, some greenish, some purplish; in some lights the whole of these parts appear to be almost, if not quite, black. The tail feathers are a dark chocolate brown; the central ones, with two or three faint irregular paler patches, traces of where bars may have been; the lateral ones, with broad, but faint and irregular, paler and mottled transverse bars. The under surface of the tail feathers, a sort of silver grey, the shafts white, a broad ill-defined dusky terminal patch, and in all but the exterior feathers, four or five somewhat narrow transverse dusky bars above this. The quills are of two colors, the one set which appear to be older, dingy hair brown, the others, almost blackish brown, with faint green or purple reflections. The inner webs in *all* are paler, except quite at the tips; and above these, there are dim transverse darker bars. The first five quills are conspicuously notched on the inner web, and the second to the fifth are emarginate on the outer web. The chin, throat, and breast are white, the feathers, tinged towards the tips with pale rufous, and most of them with narrow, blackish brown lanceolate shaft stripes. The whole of the wing lining, (except the lower greater primary coverts) axillaries, sides, flanks, abdo-

men, tarsal and tibial plumes, vent and lower tail coverts, bright ferruginous; most of the feathers dark shafted, and many of those of the wing lining, abdomen, and sides with a conspicuous, narrow, black, shaft stripe, and a few of the feathers just above the base of the tibia, very broadly tipped with blackish brown, forming a very conspicuous patch.

The bill in this species is much feebler than in any of our other Indian *Spizaeti*, and instead of a well marked sinuation or we might almost say blunt tooth, the margin in the upper mandible is almost straight. The general shape too of the bill is unlike that of the other species alluded to, for from the very base of the cere, the bill commences to slope down rapidly, instead of, as in the other species, the bill running out straight for a certain distance and commencing to curve downwards only from the end of the cere. The head has something of the falcon character about it, and as regards coloration is a *fac-simile* of that of *F. atriceps*, nobis. The toes and claws are, compared with the other Indian species of this genus, long and slender.

I may note that a second specimen, also a female, obtained in the same locality, differed in no material respect, from that above described, except that it was a decidedly larger bird. Length 29; tail, 12·5; tarsus, 3·5. But the wing was barely 17, and the bill was, if anything, feebler than that of the former. The plumage differed only in having the dark bars on the lower surface of the quills, and tail feathers more strongly marked, and in having the black shaft stripes of the abdomen and sides considerably broader than in the specimen first described.

Two others, sexes not ascertained and measurements not recorded in the flesh, but with the wings 15·5 and 15, and which I therefore take for males, though everywhere duller and with the bars more distinct on the tail and wings (indications as I believe of nonage), are of precisely the same type of colouring.

At page 201 of my Rough Notes, I mentioned an immature specimen of an hawk eagle hitherto identified with this species, as having been killed near Aberdeen, many years ago. This specimen is figured in Jard. and Selb., Ill. Orn., pl. 66. I much doubt whether this specimen is *Kienerii*, at all; if it be so, it is in a stage of plumage altogether different to anything that I have seen, and it may be useful to reproduce the original description.

“The bill is black, the cere of a yellowish green colour, the naked space between the bill and eyes, greenish black. The forehead, throat, sides of neck, and whole of the under parts,

pure white; the legs are long, the tarsi thickly clothed with white feathers; the crown of the head and nape yellowish brown, mixed with umber brown; from the occiput spring six or eight elongated dark brown feathers, forming a pendant crest; the whole of the upper parts of the body are of a dark umber-brown each feather with a paler margin; the ridge of the wings is white; the tail is long, of a deep clove-brown colour, with seven narrow black bars, the tip white; the feet are yellow, the toes reticulated as far as the last phalange, and armed with powerful sharp and crooked claws, particularly those of the interior and hind toes. Length about twenty inches; the wings, when closed, appear to reach about one-half the length of the tail; the first quill is narrow and short, the fourth and fifth the longest in the wing.

A. O. H.

Notes.

FOUR eggs of the NICOBAR MEGAPODE, recently sent me, are long cylindrical ovals, in shape recalling the eggs of sand grouse. They measure from 3.15 to 3.4 in length and from 2.05 to 2.1 in breadth. One previously sent me, by Mr. Ball, measured 3.33 by 2.12.

At first sight they remind one somewhat of large turtle eggs. The shell is very stout and coarse and the eggs look much as if they were carved out of fine sandstone. All the eggs I have seen varied in colour from a pale slightly pinky brown stone colour, to a moderately warm pink-stone colour. The eggs are of course utterly devoid of gloss, as they are also of all markings, but in some of the eggs, numerous little depressions are filled with a white chalky film, giving them the appearance of being spotted with white.

AMONGST birds recently sent me for identification by L. Mandelli, Esq., of Lebong, is a beautiful specimen of INDICATOR XANTHONOTUS. I already possess this species from Huzara in the far west, so that rare as it has hitherto been considered, the yellow-backed honeyguide has a range in the Himalayas, at any rate from the borders of Afghanistan to those of Bhotan.

Dr. Jerdon must, I think, have described either an immature bird or a female. The wing, which he gives at 3.38, has varied in the specimens I have seen from 3.6 to 3.8; and the bill at front which he notes as 0.25, has in no one of the three specimens I have

seen been less than 0.4. His description too does not tally well with adults, there being just those kinds of discrepancies, which might be expected, between young or females, and adult males.

In the present specimen :

The forehead, chin, and cheeks are silky golden yellow. The back and sides of the head and neck, and interscapular region blackish brown, every feather margined with olive yellow. If the feathers of the neck (but *not* of the interscapular region) are lifted, their basal halves will be found to be yellowish white. The wings and scapulars are black, or at any rate so deep and black a brown that most people would call them black, and all the coverts and quills, except the first few primaries, are conspicuously though narrowly margined with bright olive-yellow. The tertiaries and longer scapulars, with a conspicuous marginal white stripe on the inner webs. The tail black, the outermost tail feathers (which are narrow, pointed, and 0.8 shorter than the next pair) broadly tipped with white or greyish white, and with a streak of the same running up the shaft. The next pair (which are about 0.3 shorter than the rest of the tail,) similar, except that the white tipping is confined to the inner web. Central portion of middle and lower back and rump, bright orange yellow; the basal portions of the feathers paler and many of them with a dusky streak or spot. Sides, rump, and upper tail coverts black, some of the longest of the latter margined with yellowish white. Breast dusky, with an olivaceous tinge, and the feathers obscurely margined with olive yellow; edge of the wing, wing lining, and axillaries, silky yellow, to yellowish white. Abdomen, dull brown, the feathers broadly margined with brownish white. Flanks, vent, and lower tail coverts, blackish brown, the feathers conspicuously margined with dull, somewhat yellowish, white. The bill appears to have been bright yellow. The third quill is the longest, the second a hair's breadth at most and the first and fourth less than 0.1 shorter than the third. The tarsus is between 0.5 and 0.6 in length and is *feathered in front* for its upper three-fifths.

I am very doubtful whether this species ought to be associated with the African honeyguides, under *Indicator*. If ultimately it is decided to separate it, I would drop the name of honeyguide, which there is every reason to believe is inapplicable and christen it *Pseudo fringilla*, or the Sham finch. A distinguished naturalist who saw the specimen above described, before it was sent to me, told me that Mr. Mandelli had a new finch for me, and really barring the zygodactyle feet, it is a finch and no mistake. I should like to know more of this bird. For all its feet, I doubt strongly whether it ought to be classed with the *Picidae*,

while on the other hand, it does not seem to me to have any relations with the *Cuculidæ*, under which Mr. Gray places it. Of any of the scansors, it is nearest perhaps to the *Capitonidæ*, but it seems to me a very aberrant form, and it is to be hoped that some of our numerous Himalayan ornithologists will succeed in ascertaining something of the habits of this species, and, if they get a specimen in the flesh, send me *the tongue and body in spirits*.

I PROCURED, this last summer in Kooloo, a magnificent eagle owl. It was shot at an elevation of nearly 12,000 feet, eating a snow partridge on the ground. Unfortunately the sex was not ascertained, and my museum only contains a single specimen of *B. maximus* of Europe. Compared with that, it appears somewhat larger, and *very* much paler, though of precisely the same type of coloration.

If considered distinct, it may stand as *B. HEMACHALANA*, nobis.

ANOTHER RARE bird that I received from Kooloo, was ARCHIBUTEO HEMIPTILOPUS, Bl., and as my bird is in a very different stage of plumage to that described by Blyth and Hodgson, it may be well to subjoin a description of it.

This species closely resembles *B. ferox*; and when I first glanced at the specimen (which from its size as compared with the dimensions given by Jerdon, may possibly, though I doubt it, be a male) I passed it over as a large female of that species.

On a second look, I thought it was a remarkably fine bird. and then taking it up to examine, I came across the tarsi closely feathered, in front and at the sides, down to the feet, and knew at once what it was.

Now we know how varied are the stages of plumage through which *B. ferox* passes, and taking Blyth's (?) description quoted by Jerdon, Mr. Hodgson's drawing of the type and my present specimen, it would seem that this species too passes through very similar stages.

Mr. Hodgson's drawing now before me, a very beautiful and careful one, represents the lores and forehead as whitish, the former densely clad with curved bristle-like feathers, dark shafted at the tips. The whole of the rest of the head, chin, throat, and neck all round and upper breast, a rich rufous, somewhat paler and more buffy on the crown, each feather centred with dark brown, narrowly so on the crown, more broadly so elsewhere. The whole of the rest of the bird, a rich umber brown or

dark hair brown, with a certain slight chocolate tinge, with on the rectrices five or six moderately broad, somewhat imperfectly defined, paler and greyer brown, transverse bars.

It must be understood once for all that Mr. Hodgson's colouring is almost perfect; the drawing may be at times stiff and the positions strained in cases in which he did not himself first sketch the outline, but his colouring is as a rule more faithful than that of any artists I have seen. In the mottled plumage of many goat-suckers, scops, tragopans, &c., every feather has been, as it were, photographed in colours, and I believe that I can absolutely depend on the accuracy of the plate, from which I have taken the above description.

On this plate Mr. Hodgson has recorded as follows: "ARCHIBUTEO CRYPTOGENYS, (*ptilogenys*, *Tibetana*), Mihi; tip of bill to tip of tail, 25; bill to gape, 1.75 to 1.87; to brow, 1.12; tail, 12.25; tarsi to sole, 3.62; mid toe and nail, 2; hind ditto ditto, 1.62; wing closed, 18.5.

Tibet, Dec. 1846, skin only. Like Booted buzzard; tarsi, wholly plumed; acropodia, half scutellate, nearly; rest reticulate. Toes, medial, unequal, not thick. Talons of medial strength and acuteness, rather long than thick. Bill, short, feeble; to head as 1.87 to 1.62; curved from base and base very plumose, even nares being hid; nares ovoid obliquely longitudinal; wings and tail, injured. Gape to mid eye, hispid and plumed. Bill with vague large festoon; tip of lower mandible obliquely truncate.

"Variously allied to *Butaquila leucocephalus*, to *circus* (Buteo?) *plumipes* and *Hemietus strophiatius*."

Of these latter species I shall have more to say on another occasion, but in regard to this present bird, I would first note that all the above remarks as to structural points, and as to the dense pluming of the lores and the nearly entirely concealed nares, apply in their full integrity to my bird, only mine is considerably larger in some dimensions, and was therefore I am disposed to believe, a female, while Mr. Hodgson's was, I fancy, a male. My bird measures in the dry skin:

Length, 27; bill to gape, 1.98; to brow, 1.3; tail, 12; tarsi to sole, 3.5; mid toe and claw, 2.16; hind do. do., 1.7; closed wing, 19.75. [Jerdon gives, L. 28; T. 13; W. 20.25; hind toe and claw, 2.25.]

Forehead, chin, and lores greyish white, the bristle-like feathers of the latter dark shafted at the tips. Cheeks and ear coverts, fulvous white, the longer ear coverts fulvous, and with narrow wood brown streaks. Crown and occiput, nearly uniform wood brown, some few of the feathers very narrowly margined paler;

nape, and back of neck dark brown, broadly margined with rufous buff, and a good deal of white showing as usual in such birds on the nape; interscapular region, a somewhat lighter brown and less broadly margined with rufescent buff; rest of back, rump, and upper tail coverts, dark hair brown, the longer coverts broadly tipped with pale rufous buff, and on the feathers being lifted showing several oblong spots or imperfect bars, almost exclusively on the outer webs, which are buffy or rufous towards the tips, and more nearly white at the bases. The tail has the central feathers pale dull brown, greyish towards the centre, tipped for about 0.1, with pale rufescent or dingy buff, with three complete, and traces of two or three other, rather narrow hair brown transverse bands, the interspaces between the perfect bars being in the immediate neighbourhood of the shafts, strongly tinged with buff. The shafts are white except from where they enter the subterminal brown bar (which is the broadest and about 0.6 wide at the shaft) whence they are brown. The outer webs of the lateral tail feathers are similar, but have the tippings broader and more rufous and the interspaces more strongly rufous, while except just at the tips, their inner webs have a greyish white ground. The central tail feathers are 2.25 broad, and are a good inch longer than the exterior pair.

The upper throat and sides of the neck are a warm bright brown, the feathers buffy at their bases and more or less broadly margined with buff.

The base of the throat, the whole breast, abdomen, vent, and lower tail coverts, white, with here and there a bright buffy tinge, and a few of the feathers of the sides of the breast a more decided rufous buff, with in some broad, in some narrow, rufous brown shaft patches or streaks towards the tips. The sides of the abdomen, a rich rufous brown, the feathers narrowly margined brighter rufous. The tibial plumes, which are very long, reaching down quite to the bifurcation of the toes, and the short close feathers of the front and sides of the tarsi similar, but somewhat darker. The foot is finely reticulate. The greater part of the back of the tarsus is covered with broad transverse plates, but the upper part near the joint, and the latter, are reticulate. The wings are long, and appear to reach, *very* nearly, if not quite, to the end of the tail. The edge of the wing is white, the lesser lower coverts and axillaries, rufescent white, here and there strongly tinged with rufous buff, and here and there streaked, or again imperfectly barred with brown. The median lower wing coverts a deep brown, with some bright rufous patches towards the tips and the largest coverts, grey brown. The first four quills are strongly notched

on their inner webs. The second to fifth inclusive, feebly sinuated on the outer web.

The first three quills have the whole of *both* webs above the notches and emarginations pure white, while the terminal portions are an uniform wood brown, only slightly greyer on the outer webs. The rest of the primaries are brown towards the tips, where they are narrowly margined paler, white on the rest of the inner, pale grey brown on the outer webs, with numerous moderately broad, transverse brown bars on both webs. The rest of the quills similar, but duller and more uniformly coloured, less grey on the outer, more strongly suffused with brown on the inner webs, and hence the transverse bars less apparent, (in fact scarcely apparent at all in the closed wing;) the scapulars and coverts are unicolorous with the secondaries, but the lesser and a few of the median coverts are margined more or less conspicuously with rufous buff.

I do not in the least doubt that this is one stage of the veritable *A. hemiptilopus*, but it is a stage never yet described, and the extension of the white over *both* webs of the first three primaries above the notches and emarginations, a most noteworthy fact. Is this an individual peculiarity? Is it characteristic of this stage only, or is it persistent? and if so, how has it escaped notice? or lastly, *can* there be two rough legged buzzards in the Himalayas? Should this latter, which I cannot at all believe, by any chance prove to be the case, this white winged species should stand as *leucoptera*, nobis.

PROCARDUELIS MANDELLII, nobis, described ante, page 14, will not stand. Blandford has already described it under the name of *P. RUBESCENS* which must stand. This is no fault of mine, do what I will, I cannot get my proceedings and transactions of the Zoo.; I have written frantically about this to my bookseller till I am tired, and to Dr. Selater until—*he* is probably tired of *me*. Even now I should have known nothing about it, had not Dr. Stoliczka kindly lent me Part III. of the Proceedings for 1871, which have never yet been sent to me, in which *rubescens* appears. It is really too bad, but what *can* one do? I should like to hang *some* body, (I don't care who, I am not cruel by disposition) pour encourager les autres, but doubts have been suggested to me as to the legality of such a course, and so I suppose I must even grin and bear it.

AMONGST the collection of birds from Thyetmyo, most kindly sent me for examination by Captain Fielden, I find one species

Poliornis liventer, Tem.=*pallidus*, Less, the occurrence of which on the very northern frontier of Burmah, appears to me noteworthy.

Temminck originally gave it from Celebes, Sumatra, Java, and *the Continent of India*. There is no reason to believe that it ever occurs in India Proper, but it certainly, as we now see, is found on the Continent of Asia, well inland. *P. teesa* is common at Thyetmyo; and in 1845, Dr. Helfer sent a young specimen of *P. poliogenys* (B. pygmæus, Blyth,) from Tenasserim.

I HAVE a *Spizaetus*, from Travancore, that altogether puzzles me. Its leading characteristics are

A CREST, 4 inches long, blackish, not tipped white, brown at base,

A WING, 14 inches,

A TARSUS, 3.9 inches,

A TAIL, pale brown, with one subterminal 1.5 inch blackish brown bar, a 2 inch space, and three other 0.6 to 0.75 inch bars, about 1 inch apart, and no others, or any trace of such.

I am sure any one who has studied this group will admit that this is a puzzler, especially coming from Travancore.

We may first set aside *caligatus*, Raffles, which has usually no crest, *never* one more than 3 inches in length, of which the smallest male has a wing 15, (running sometimes to 17 even in the male) with a tarsus, 3.5.

Also *cirrhatu*s, Gmelin, which has the crest feathers tipped white in the youngest birds, and a wing of 15.25 in the smallest male.

Also *nipalensis*, Hodgson, which also always has the crest white or paler tipped, and in which the wing of the smallest male exceeds 17.5.

This seems a fit place for recalling attention to the distinction which I first pointed out (Rough Notes, page 208,) between *nipalensis* and the two previous species, and which ornithologists in India persist in overlooking, sending me continually the young of *nipalensis* as *cirrhatu*s.

“In *cirrhatu*s and *caligatus*, the feathering of the feet ends, more or less *above* the division of the toes. In some specimens fully an eighth of an inch of the foot is left bare, in others the feathering, especially of the central portion of the foot, comes down *all but* level with the division of the toes. In *nipalensis*, on the other hand, the feathering runs distinctly *down* the middle toe, reaching furthest down exteriorly; so that in

some specimens fully, and in all nearly, one-half of the outer portion of the first joint of the mid toe is plumed." I have now examined fully fifty specimens of each of these three species, and find this distinction holds good invariably, and I may here add, that I possess a nearly adult *nipalensis* brought me by Mr. Davison from the Neilgherries.

To return to our bird, (the feet of which by the way are feathered as in *caligatus*), it clearly belongs to none of these species.

It naturally suggests itself that this may be the young of *Kienerii*, and I dare say similar specimens have been identified as such, but *Kienerii* was described from the Himalayas, and a very fine adult female, cf. supra. p., 311 with a wing 17·5, has a tarsus of only 3, and the longest tarsus of any female even of this species that I have seen, was 3·5, whereas our bird, if it belonged to this species, must, with its wing only 14, be a very small male, and yet it has a tarsus 3·9. Besides this it has a long full crest, while true *Kienerii*, has no well marked lengthened crest, only the occipital feathers as a body slightly longer than those above and below them. If it were not for the seven bars on the tail, which however are probably not a constant feature, I should believe that the specimen (cf. supra. p. 312) figured by Jardine and Selby, might belong to the same species as our present bird.

It is not *lanceolatus*, Tem. and Schlegel, F. Jap., p. 7, (fasciolatus, Schl., M. P. B., p. 9,) which is distinguished by its absence of crest, and a male of which with the wing 14·5, has a tarsus 3·12. Of this species, by the way, Mr. Gurney remarks (*in epist*).

S. lanceolatus, I believe to be quite restricted to the Celebes and Sula Islands. The following are the measurements of a female and male *S. lanceolatus* in the Norwich Museum :

	Male.	Female.
Entire length in inches	25·	28·
Wing from carpal joint to tip of primaries	14·5	17·
Tail	9·75	11·
Tarsus	3·12	3·62
Middle toe with claw	2·87	3·62

S. lanceolatus is figured under the name of *S. cirrhatus* in Schlegel's "Valk. Vogel," pl. 7, fig. 2, (immature,) and fig. 3, (adult)."

It is not *andamanensis*, Tytler, for although the female of this with a wing 14, has sometimes a tarsus of nearly 3·75, this species is crestless; some old adults show traces of a crest, but never a well marked, greatly elongated crest as in our bird.

It is not *alboniger*, Blyth, at least I think not, because that species appears to have a short stout tarsus, while ours has a particularly long and slender one, a tarsus of 3 to a wing of 13 inches, against a tarsus of 3·9 and a wing of 14 in ours, and because even in the adult (and if our bird belonged to this species, it must be quite a young one) the crest in *alboniger* appears to be nearly an inch shorter, and to be broader, and differently shaped. It belongs to the same sub-group, I believe, but it cannot be I think identical.

It cannot be *Lathamii*, Tickell, (does any body know what that is?) for the length of that species is given at 18 inches, while ours was at least 23; nor can it be *nanus*, Wallace, Ibis 1868, p. 14, which with a wing 11, has a tarsus of only 2·6 a mid toe feathered nearly to the first joint, and a crest conspicuously white tipped.

The only remaining Asiatic species that I am acquainted with is *philippensis*, Gurney, from the Philippines, and it is decidedly closer to this than to any of the others. These are Mr. Gurney's dimensions:

"Total length 25 inches; wing, 14·75; crest 2·5; tarsus, 3·5."

These do not agree over well with ours, a longer wing, a much shorter crest and tarsus.

Then the tail has seven bars, not four, as in ours, but there is the broad interspace dividing off the last bar as in ours, and "the throat has a broad blackish band running down its centre, with two similar and nearly parallel bands proceeding from the corners of the mouth, the three bands all merging in a cluster of dark brown lanceolate marks" Mr. Gurney adds "upon the upper portion of the breast," but in our bird, on the basal portion of the throat. If not *philippensis*, it is new; if new, how can one believe in such a species restricted to a little corner as this would seem to be, unless indeed it has been confounded in Ceylon with *Kienerii*; if *philippensis* what does it mean by turning up in *Travancore* of all places? que diable allait il faire dans cette galère?"

However I will describe it in detail; it is an enigma to me and if new, shall stand as *S. sphynx*, nobis.

Dimensions, (from the skin a very good one,) length, 22 to 23; wing 14·1; the fifth quill the longest; the fourth, 0·15; the third 0·65; the second 1·6; and the first, 4·3 shorter than the fifth. Tail, 10·2; external feathers, 0·7 shorter than the rest. Tarsus, 3·9; mid toe and claw, 2·5 nearly.

The first five quills very conspicuously notched on the inner webs, the sixth also notched but more feebly—the second to the seventh (both inclusive) conspicuously emarginate on the outer webs. The

nostrils narrowly ovate, the major axis nearly perpendicular to the commissure.

The whole back, top, and sides of the head, (excluding the crest) back and sides of the neck a *pale* slightly rufous brown, each feather with a blackish brown shaft stripe, broad on the crown, narrow elsewhere. Crest of about 20 feathers, blackish brown, except at the bases which are synchronious with the ground color of the head and neck. The longest feathers over four inches in length, the shortest about an inch, with every intermediate gradation.

The interscapular region dark hair brown, with only a *faint trace* of paler margins; lower back rump and upper tail coverts uniform, rather *pale* brown; scapulars, lesser and median coverts, hair brown; margined more or less broadly with pale brown, and paling more or less above the tips on one or both webs, and towards their bases. Quills and their greatest coverts, dull brown, darkest (in fact blackish) on the outer webs and tips of the earlier primaries; the earlier secondaries narrowly tipped with brownish white; the secondaries and later primaries, with traces of darker bars even on their outer webs, and the second to the seventh primary, with a decided pale rufescent, or fulvous bar on the outer web, just at the emargination. The edge of the wing from the carpal joint to the base of the primaries, white. On the lower surface, the tips of the earlier primaries, dark brown; above this to the notch, grey, with three well marked transverse dark brown bars; above the notch, white; the later primaries and secondaries, greyish white, with a broad subterminal, and four or five other transverse dark brown bands. The lesser lower coverts, dull rufous, brown-shafted, more or less white edged; the rest, white, very broadly barred with deep brown.

The chin and throat are white, with one central and two lateral blackish brown streaks, which unite at the base of the throat at the front of the neck; below this for about an inch, dull rufous brown, like the sides and back of the neck; the breast white; the feathers with huge dark brown drops, edged paler, towards the tips.

Sides, abdomen, lower tail coverts, flanks, and exterior tibial plumes, a nearly uniform, somewhat pale, umber brown, most of the feathers, with inconspicuous very narrow, whitish tips. Interior tibial plumes and tarsal feathers, pale dingy yellowish brown, paling most towards the feet.

The tail above, a dull pale brown, narrowly tipped with brownish white, a 1.5 subterminal dark brown band, a two-inch blank space, and three other similarly coloured 0.6 to 0.7 broad

bands, about an inch apart; below the ground colour is an albescent brownish grey, the bars showing through, but only the broad subterminal one conspicuously.

Is this *philippensis*? is it new? I must leave Mr. Gurney to pronounce judgment, as for me, *Davus sum non Edipus*.

MR. H. R. P. CARTER, C. E., very kindly sends me from Coimbatore three specimens of the European House Martin, *Chelidon urbica*, L. All are young birds, but whether bred in India or not, I cannot guess. In England, if I remember rightly, the young do not moult before leaving us. Hitherto I have only received this species from Thundiani in Huzara, a little Sanatorium, nearly 9,000 feet above the level of the sea, where they are plentiful during the summer. These Coimbatore specimens were shot during *this present year*.

MR. C. W. MATHEWS, I. C. S., sends me the most lovely *lutino* of *Palæornis rosa*, that I ever saw. He shot it early in January, in the salt range, near the Mayo mines. It is a very fine male; the general colour of the plumage, the brightest and purest canary yellow, only a few of the quills, and a few of the feathers of the back, rump, and flanks, a bright pure green. The forehead, cheeks, and chin, a lovely magenta pink; the *central* tail feathers pure white, except at the bases, (which, with the whole of the rest of the rectrices, are yellow,) and a narrow *bright* blue streak down the shaft of one of them. The bill appears to have been orange yellow and the feet pinkish. It is impossible to conceive, so bright and pure are all the tints, a more beautiful creature.

MR. E. LOCKWOOD, C. S., sends me a skin of the grey tit (*Parus cinereus*) from Purneah, where he says it is common in gardens, with the remark that since the roadside trees have grown up, numbers of species now visit Purneah in the cold weather that formerly never crossed the treeless belt of country intervening between that station and the Terai. This is only another instance of the readiness with which birds avail themselves of any alterations in the condition of things; there are numbers now-a-days that seem absolutely to ignore the fact that they *can* sit any where except on the wires, and who would, I have no doubt, consider the abolition of telegraphs a gross and unwarrantable disregard of *their* vested rights!

A. O. H.

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A

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FOR

INDIA AND ITS DEPENDENCIES.

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[No. 5.]

Notes upon some of the Indian and European Eagles.

By W. Edwin Brooks, C. E.

No. II.

Since my former notice (*vide* page 290,) I have received additional information of great interest to the ornithologist.

I have two specimens of the eagle known as *Aquila orientalis*, Cab., and erroneously termed by some authors *Aq. clanga* of Pallas. One of these specimens was sent to me by Dr. Bree of Colchester, and is labelled *Aq. orientalis*, Cabanis, in Mr. Gurney's own handwriting, the other was sent me by Mr. Dresser, and was shot near Sarepta.

The extreme similarity of these two birds to our Indian *Aquila bifasciata* when nearly mature, frequently struck me; but none of my Indian specimens corresponded exactly with them as regarded the tail, although in other respects they accorded perfectly. Now, however, I have just received Indian examples of *Aq. bifasciata*, with tails exactly corresponding with those of the two European *A. orientalis* above referred to. I have no hesitation whatever in pronouncing the two species to be identical. *Aq. bifasciata* is, I believe, the older term, and if so, *Aq. orientalis*, Cab., will sink into a synonym.

I have thus now in my possession three examples of *Aq. bifasciata* shot in Europe, which I consider quite sufficient to establish the species as European. I keep them by me with their Indian counterparts, and whoever doubts my conclusion can satisfy himself by examination. It was not to be expected that a migratory eagle of similar size and power to *A. mogilnik* should be restricted to Eastern Europe, considering that we have in India *A. chrysætos*, *A. mogilnik* vel *imperialis*, *A. nævioides* and *A. nævia*.

The migratory eagles are not local, but are, as a rule, very widely spread.

Speaking of the mature example of *Aq. bifasciata* which was sent to me by Captain Elwes, Mr. Gurney (*Ibis*, 1870, pp. 67 and 68) attaches considerable importance to the two parti-colored

feathers in the scapular region of this specimen ; and he concludes that the presence of these two little parti-colored feathers demonstrates that the bird is *Aq. naevioides*. In answer to this I may observe, that I found a specimen of *Aq. vindhiana* with parti-colored small scapulars: I have also seen a specimen of *Aq. mogilnik* with parti-colored scapulars. Mr. Anderson too speaks of one (P. Z. S., 1872, p. 621). The other day I examined an example of *Cuncuma leucogaster* with some of the scapular feathers having one side of the feather fulvous, and the other brown. I believe occasional parti-colored feathers are to be found in most eagles, although to a greater extent in *Aq. naevioides*, which I believe retains them permanently in its most advanced stage of plumage. At all events the Bosphorus *A. bifasciata* is *structurally* opposed to *Aq. naevioides*, and its nostril, though a dried one, is most perfect ; having never had any thread or string passed through it to keep the bill closed.

Mr. Gurney suggests (in Epist.) that the process of desiccation may have distorted the nostril ; so that though originally a round one, it may now be lengthened : but this supposition is quite out of the question. This climate, of all others, will thoroughly desiccate the whole bird, especially the hot winds of the North-Western Provinces to which all my birds have been exposed ; and after examining my numerous specimens of eagles, I find no material alteration ; certainly nothing to the extent suggested by Mr. Gurney ; and it is still easy in every case, by looking at the nostril alone, supposing the body of the bird to be covered up, to tell to what class of eagle it belongs. By no process of desiccation whatever, could the *rather small round* nostril of *Aq. naevioides* become the *large long* vertical one of *Aquila bifasciata*. The size of the nostril in the two birds is so different. I have not before observed that *Aq. bifasciata*, as a rule, is *Imperial Eagle* size, which *Aq. naevioides* is *not* ; and once more I maintain that the tail of the latter is a plain black one, very rarely barred, and then with the faintest possible barring square to the shaft of the feather, and not extending more than half way to the edge of the feather, if so much.

Mr. Gurney informs me that if his memory does not deceive him, he has seen specimens of *Aq. naevioides* with tails as strongly barred as that of the Bosphorus *A. bifasciata* in question. All I can say to this is, that the birds with grey well barred tails were not *Aq. naevioides*, but some other species, probably *A. bifasciata*. I have again strongly drawn attention to this question for my conclusions are disputed by English ornithologists. They won't believe it possible that they have overlooked so large a bird in Europe as an eagle ; but the

specimens themselves which I possess are very solid facts which the best men in Europe cannot contend against.

It is now admitted by Messrs. Gurney and Dresser, that the adults of *Aquila hastata*, and what they call the North German or small race of the spotted eagle, (the true *Aquila naevia* of the old authors, in their opinion,) are not to be distinguished; but they contend that the immature birds are different. In opposition to this, I submit that the Danzig bird sent me as *Aq. naevia* by Mr. Dresser is a veritable *Aq. hastata*, and immature birds of this species *must* occur in the same region. The spotted birds which differ may not have been satisfactorily connected with the adults to which they were said to belong. Did any one take the immature one from the nest, and rear it? The statement that the immature plumage of the little Pomeranian spotted eagle is different from that of *Aq. hastata*, I regard, at all events for the present, as theoretical.

I should not be in a position myself to say what the immature plumage of *Aq. vindhiana* was, unless I had brought up the young from the nest. How do Messrs. Gurney and Dresser prove that the immature of the Pomeranian spotted eagle is distinct from that of *A. hastata*?

They say the immature plumage of *A. hastata* has not occurred in Europe, and is not known there, but against this I say, it is only the other day that *Aq. mogilnik*, in the lineated stage was found to occur in Europe, and it is a plentiful bird there! Again *A. bifasciata* has been bodily overlooked, so that I can quite understand that neither Messrs. Gurney nor Dresser have yet seen an immature European *Aq. hastata*. They will see them, however, before long, and the immature typical *Aq. bifasciata* too, unless I am greatly mistaken. They have, I believe, at last seen the *lineated Aq. mogilnik* to begin with; at all events they must have heard of it by this time, and the others will follow in due course. How long is it since it was denied upon the best authority, that there was such a thing as a lineated Imperial Eagle in Europe, and it was contended that the Indian bird was quite distinct from the true *imperialis* or *mogilnik*? Now they are united, and a distinct Western bird (*Aq. adalberti*, Brehm) is separated. *These birds were not seen, because they were not properly looked after*; and after all Europe with its numerous ornithologists and collectors, and with a climate facilitating the operations of the naturalist to the utmost, so widely different from the scorching Indian one, has been but very lazily explored, and there is no knowing what may turn up there in the future in the way of identifications.

I do not think that *Aq. clanga*, of Pallas, has any connection

with *Aq. bifasciata* vel *orientalis*; for Pallas says, the tail is black, "*Cauda nigra*"; again he says, the back is black, "*dorsum nigrum*." This could only apply to our Indian spotted eagle which frequently has the plumage very dark indeed and nearly black. The legs are said to be "*nigricante albo varia*." The white tarsus, or partly white tarsus is characteristic of *Aq. navia*, I mean of *Aquila navia*, as we know it in India, for Mr. Gurney now separates our bird as *Aq. vittata*, Hodgson. This I cannot understand, and he must prove the assertion before it can be generally received.

Pallas, after saying that the back is black as well as the tail, and surely he could not have overlooked the strongly barred grey tail of *Aq. bifasciata* vel *orientalis*, says, the wing coverts are spotted with white, ("*tectricibus albo variegatis*"). Altogether, as far as I can understand his description, it is utterly impossible to apply it to *Aquila bifasciata* vel *orientalis*, but it suits large examples of our Indian spotted eagle and no other bird that I know of. This bird I have procured measuring 2 feet 4½ inches total length; wing, 20½ inches; and weighing 6¼ lbs., a female of course. This species varies excessively in size, and I have some very small examples, barely exceeding *Aq. hastata* in size. The way in which *A. hastata* and our Indian spotted eagle, which we call *navia* approach each other as regards size, renders it difficult to find out which the original *A. navia* was. I have an excessively meagre description by Gmelin, which to me appears to indicate the bird we recognize as *navia* in India, although some of the English naturalists evidently receive another bird as *navia*. I believe the original description, which I have never seen, is by Brisson.

The two Turkish spotted eagles sent me by Captain Elwes, as I mentioned before, are identical to a feather with our Indian *A. navia* in the same plumage. Mr. Gurney suggests that I may have received the immature of *Aq. orientalis*. This is quite impossible, for the two birds have the perfect *navia* spotted plumage, and, moreover, have the small roundish nostril of that species; besides, they have plain black tails, which *Aq. orientalis* has not. It would be rather strange too, if I who have shot so many of this species in this very plumage, and who have had at least four times the number of specimens through my hands that any of the English ornithologists have had, should not know the bird when I see it from Europe. I have seen most of the specimens belonging to Messrs. Hume, Anderson, and Marshall as well as my own. However, when I submit the birds at a meeting of Z. S., there will be no doubt upon this point, and this I shall do unless my identifications are accepted. To separate

Phylloscopus Tytleri from *P. viridanus* and *Hippolais agricolaensis* from *P. Rama* were real difficulties, but to recognize *Aq. naevia* in the spotted plumage is within the powers of the veriest tyro.

Very little is known of the nestling, or first plumage of the various eagles. I have not even described that of the two young *Aq. vindhiana* (*A. fulvescens*) I procured from the nest two years ago. The eggs of eagles are so keenly sought after, that the important point of the first plumage has been neglected. Perhaps something may be done this year towards a knowledge of the first plumage of two or three of our eagles, if only the love for egg-collecting be moderated. It would be interesting to shew whether the young eagles moulted their first plumage in the autumn after they were hatched or not. I cannot believe judging from the analogy of the common Indian kite, that the lineated stage of *Aq. mogilnik* is the first one. It ought to be the second. This, and many other similar points, will, it is to be hoped, be cleared up before long, as the study of natural history extends.

Although I and others have been writing about the various stages of plumage in eagles, we are still, many of us, ignorant of the first plumage; and this ignorance might have been removed long ago, if the young birds had been looked to, instead of the mere acquisition of the egg shells. A knowledge of the eggs is no doubt interesting, but the birds themselves are of far greater interest; and after all, eggs are but eggs, and merely temporary cases for the young, although they are often so beautiful.

P. S.—Since writing the foregoing, I have seen the “original” description of *Aquila naevia* by Brisson. The synonyms are—

Aquila naevia, Schwenck, *Avi. Sil.*, page 219.

Aquila clanga, Klein, *Avi.*, page 41, No. 6.

Morphno congener, Aldror, *Avi. Tom. I.*, page 214.

Morphno congener, Aldrovandi, Willugh. *Ornith.*, page 32.

In his description of *Aquila clanga*, Pallas quotes the above synonyms, omitting however the last, but adding *Aquila minor*, Buffon, *Orn. I.*, p. 91.

It is thus clear, that to apply the term *clanga* to any eagle but the original spotted eagle described by the older authors, is a great mistake; and it is utterly impossible to apply the term to *Aq. bifasciata*, which I have shewn is identical with *Aq. orientalis*, Cal. *Clanga* is not Pallas’s term, but is a synonym of *A. naevia*; and why it was preferred by Pallas, I do not know.

The total length of *Aquila naevia* given by Brisson, is 2 feet 7 inches and six lines: equal to 2 feet $8\frac{5}{8}$ inches English measurement! I should have been inclined to think that there was some error here, but a second measurement of 2 feet 5 inches from tip of bill to end of claws = 2 feet $6\frac{1}{8}$ inches Eng-

lish, confirms the first measurement. It will be thus seen, that the bird described is *full Imperial Eagle size*; and this renders Mr. Gurney's conclusion, that original *A. nœvia* was a bird the size of *Aq. hastata*, impossible to be received. The tail is said to be 12 inches long = $12\frac{3}{8}$ inches English! Now what *Aquila hastata* or even *A. nœvia*, as we receive the bird in India, has a 12 in. tail? Is it possible that the specimen described was a terribly elongated skin? But though this would get rid of the difficulty of total length, what becomes of the extra long tail, which certainly would not stretch. What a pity the old writers omitted the all-important measurement of length of wing from carpal joint! But the expanse is said to be only 4 feet, = 4 feet $1\frac{1}{4}$ English. This is too little for even *Aq. hastata*; so that too much importance should not be attached to Brisson's total length measurement. In the description of the colors there are a few points noted, which strongly indicate the bird we recognize in India as *Aq. nœvia*. "*Alæ subtus maculis multis, ovalibus, albis, hinc inde sparsis, insigniuntur. Crura et pedes pennis vestiuntur ad principium digitorum usque, et albis similiter notis sunt aspersa.*" This reference to oval white spots could hardly apply to any other eagle. The general color of the body is thus described: "*In universo ferè corpore obscure ferrugineo colore tingitur. Guttur tamen obscure albet.*" The tail feathers are said to be white at their bases and their tips, and they are also said to be transversely barred. "*Rectrices in exortu et apice al bent; in reliqua longitudine obscure ferrugineo tinguntur, et maculis latiusculis, fuscis transversim notantur.*" I have noticed that some of the younger spotted examples have fairly barred tails, although this is not the rule; and frequently the inner webs of the secondaries and tertials are barred. The only other eagle, any thing like the description by Brisson, is the young lineated *Aquila mogilnik*, and the dimensions, save expanse, would agree well. Can it be possible that this spotted stage of the *Imperial eagle* was the original *A. nœvia*? I leave this for better judges than myself to settle. It is important to settle the point, if possible, who was the original describer; and which has priority, *Aquila nœvia*, Schwenck, or *Aquila clanga*, Klein? One of the two latter authors may give some explicit reference which will remove all doubt as to what the original *Aquila nœvia* was. Again, it is possible, that although Pallas and Brisson unite the two terms, they may after all refer to two distinct species? Brisson's reference to white on the tarsus, as in the case of Pallas's description of *Aq. clanga*, points to our Indian *Nœvia* or the spotted eagle of south-east Europe in contradistinction to the small Pomoranic eagle. The latter I

have identified with our Indian *Aq. hastata*. If Mr. Gurney reads Brisson's description carefully over, he cannot apply it to that small eagle, and pronounce it to be "the true *A. nævia* of the old authors."

In the identification of *Aquila orientalis* with *Aq. bifasciata*; of *Aq. hastata* with the small Pomeranian eagle, of the Bosphorus eagle (thought to be *Aq. nævioides* by Mr. Gurney) with *Aq. bifasciata*, and if the two Turkish spotted eagles, with our Indian *Aq. nævia*, I am not alone, but am confirmed by Dr. Stoliczka, Mr. V. Ball, and Captain G. F. L. Marshall who have carefully examined the different series which were used.

If, after all, it turns out that the immature of the Pomeranian spotted eagle are distinct from those of *Aq. hastata*, it will be one of the most wonderful of ornithological facts; but since the immature lineated Imperial eagle was for ages overlooked and said not to occur in Europe, so also immature *Aquila hastata* may turn up plentifully some of these days in Europe.

P. P. S.—With reference to priority of terms, Brisson gives a list of authors quoted, with dates of publication. Schwenckfeld's work is dated 1603, and Klein's 1750. *Aquila nævia* is therefore much the older term for the spotted eagle, and *Aquila clanga*, Klein, is but a synonym. I did not notice the list of authors till after I had sent my paper.

Notes on the Parroquets of India.

By Capt. Thomas Hutton, C. M. Z. S., &c.

Notwithstanding all that has been said and written regarding the parroquets of Continental India,—notwithstanding the long lapse of years since the time of Alexander the Great, by whose followers they are said to have been introduced into Greece after that warrior's remarkable expedition from India to Ceylon, it is still a melancholy fact that every writer on these birds persists in giving *Palæornis Alexandri*, a place in our Continental fauna. A few would restrict it as a rather rare species to Ceylon, others declare it to be exceedingly abundant in some parts of that Island; some again declare it to be scattered all over India, while others state it to be a very local species capriciously clinging to one, and avoiding other districts.

It is nearly certain, however, that the Indian bird described by Blyth, Jerdon, and a host of other observers, is totally distinct from the Ceylon bird, but so prone have been our Indian Naturalists to put their trust in some great leader who literally knew no more than they did themselves, that one after another

they have been content to accept as true all that their immediate predecessors have left on record, without taking the trouble to inquire into the truth, and thus the errors of the past have been perpetuated and several distinct species have become doubled up together under the one time-honored name of *Palæornis Alexandri*, or Alexandrine Parroquet.

Various inquiries long since instituted by myself among the leaders of science in Calcutta only served to elicit the fact that none of them possessed the least suspicion that there could be more than one species in the country to which that name had been assigned, neither could they tell me whether any of their museums contained a specimen of the Ceylon bird, the usual answer being, "send us a description of what you consider the true *P. Alexandri*, and then we shall be able to tell you whether we have it or not." Determined to follow out my old plan of taking nothing for granted, no matter who the authority might be, I at once set to work to collect specimens and information from all parts of the country, and the result of my investigations I now purpose to lay before the public.

The habits, manners, and food of the parroquets are, as a rule, nearly the same in all. The eggs are laid in holes cut by the birds for that purpose in the thick branch or trunk of some soft wooded tree; they vary in number from two to four, and are pure white. *P. torquatus* however is said sometimes to lay its eggs in the holes of ruined buildings, but this can only be regarded as an unnatural and occasional deviation from the rule, since previous to the decay of such buildings all birds must have resorted to rocks and trees or to the earth itself. The food of all consists of fruits, berries, hard grain, and even the smaller seeds of grasses and other plants, and they are quite as expert in dividing cherry stones after feasting on the pulp, as are the birds of the Grosbeak kind.

The havoc committed in the fields of ripening corn is often very great, many of the ears being cut off and thrown down apparently in pure wanton mischief. They are fond of bathing in shallow waters and are naturally very cleanly in their habits; they are fond likewise of swallowing small pieces of gravel to assist in the digestion of their food, and sharpen the edges of their massive mandibles by grinding down lumps of hard claystone and other earths, and if not well supplied with these, the captive bird is liable to become sickly and drop suddenly from its perch in a fit. A piece of hard wood placed in the cage will soon be reduced to chips, and by this means the too exuberant growth of the mandibles is checked; without these occasional amusements, the bird is often very destructive to its cage cutting

through wire as thick as whipcord without the least difficulty. This of course applies more particularly to the larger species. In captivity, moreover, from the want of healthy exercise and the sameness of the food, as well as from the improper nature of the food itself, the brilliant colours are very apt to fade, the green becoming greyish, and sometimes partially white.

These birds, except at the breeding seasons, are all truly gregarious, collecting into large flocks and screaming loudly in concert as they cleave the air with rapid and rushing flight, so swift that they are scarcely seen before they are lost to sight.

The natives in the Upper Provinces are curiously superstitious about these birds, most of the large ones being regarded with some degree of reverence; and among the Hindoos the sale of a tame parroquet would entail the loss of caste; they are permitted to give them away, but not to sell them, and even a bird-catcher who brings the nestlings for sale, if he chance to pass your door without offering the birds, dare not retrace his steps even when called, until he has hawked his stock throughout the station; you may go to him and purchase where he stands, but he cannot return to you. The Hindoo, however, has a curious method of evading the law which prevents his selling a pet bird; he will tell you openly he dare not sell his bird, which he values at a high sum, and then cautiously following you, will tell you, *sotto voce*, that he will give you the bird and trust to your giving something in exchange, of course in the hope of making a far better bargain. Poor Hindoo, I fear his morals are no worse than those of more enlightened races.

In preparing their nests these birds, having selected a suitable tree, begin to cut a circular hole, generally in the trunk, and having penetrated for four or five inches, they begin to cut perpendicularly downwards for eight or nine inches, sinking a perfectly cylindrical well, and laying their eggs on the soft chips at the bottom, to which are sometimes added a few dry leaves.

The time of incubation is about twenty-one days, and the nestling is sufficiently feathered in about a fortnight or so afterwards, to be taken from the nest to rear, but if unmolested, it would not leave it until a month or five weeks old.

1.—*Palæornis Alexandri*.

Taking Bennett's description of what he terms the true *P. Alexandri* of Ceylon, we find him stating in "The Garden and Menagerie of the Zoological Society of London," published in 1835, that, "the distinctive characters of this beautiful species of parrot consist in the broad black patch occupying the

fore-part of the throat, and extending, laterally, in two narrow processes on each side of the neck ; in *the black line* extending from the base of the beak to the eyes ; and more particularly in the deep purplish red patch at the base of its wings. Its bill is larger than that of the rose ring parakeet, from which it scarcely differs except in this particular,—in the somewhat greater breadth and deeper colouring of its rosy collar, and in the dark red marking of its shoulders which is wanting in the latter. The usual length of the male bird is from 18 to 20 inches ; the female is smaller but does not, according to M. Levaillant, differ in colouring.*” Bennett likewise informs us that the Ceylon bird “is of much rarer occurrence than several of the other species of the same group ;” while Mr. Layard declares that “in Ceylon it is found in *countless thousands* at Batticaloa nestling in the cocoanut trees, and resorting to them at night in vast flocks.” Cassell remarks of this bird that “it is a native of *India* and Ceylon, and derives its designation from the fact, real or supposed, of its having been first transported from Asiatic countries by Alexander the Great. Its most distinguishing characters consist in *the broad black patch* which occupies the fore-part of the throat and extends laterally in two narrow processes on each side of the neck ; a black line stretches from the base of the beak to the eyes, and there is a deep purplish red patch at the base of the wings.” This however is but a repetition of Bennett’s account, and is evidently copied from him.

Latham’s description of what he terms *P. Alexandri* is this : “Length, 15 inches ; bill, red ; plumage in general, green, paler beneath ; *throat black*, passing behind to meet a crescent of red at the back of the neck ; at the bend of the wing, a purplish spot ; tail longer than the body, green fringed with blue, and pale yellow beneath ; in shape greatly cuniform ; legs, dusky.”

Then he gives a variety which he says “is 21½ inches, the tail being longer in proportion ; lower mandible, dusky ; eyelids, broad, rough, crimson ; at the base of the neck a crimson ring, met on each side by a crescent of black, taking rise at the under jaw ; bend of the wing and the coverts blue ; on the latter a long patch of crimson ; quills, blue ; tail, very long and cuniform ; *legs, flesh colour*. The female has no ring, nor any black on the chin † ; space round the eye narrower.”

* Does this mean that the female possesses the black and rose-coloured rings on the neck as in the male ? If so, this character at once distinguishes the species from all Indian parakeets.

† This mention of no ring and black patch in the female of the variety looks as if it existed in *P. Alexandri* !

This seems somewhat like a fancy portrait.

Jerdon's description of what he terms *P. Alexandri* is à propos to nothing, and does not in any respect apply to it ; neither does the description furnished to me by Lieut. Col. R. Tytler of specimens from Oudh and Rajmahal.

Blyth in his Catalogue of the birds in the Museum of the Asiatic Society in Calcutta, has given at No. 16, a confusion of names which every one since his time has reverently followed and applied to the Ceylon bird, and yet it is altogether worthless, since as before stated, *P. Alexandri* not being found on the Continent of India, it is clear that Hodgson's *P. Nipalensis* is distinct.

This has long been my firm conviction, and now, in 1872, my friend Mr. A. Q. Hume informs me that he has received two specimens of the true *P. Alexandri* from Ceylon, and that he is disposed to believe that it is distinct from the Indian bird passing under that name ; we may therefore in future erase it from our Indian fauna.

No. 2.—*Palæornis sivalensis*. Hutton.

This name is only provisionally applied, as it is as yet doubtful whether it may not be identical with Hodgson's *P. nipalensis*, the description of which I have not seen. It is also probably identical with the bird which the bird-catchers annually bring round as nestlings from the Terai forests below Kumaon, and which they call the *rai totah*, or royal parrakeet, from Kaladoongee.

The bird to which I assign the above name is found in great numbers in the Eastern Dheon, below the Siwaliks, near Hurdwar, but according to the information yet procured, does not occur on the western side of Dehra. Towards the end of January and beginning of February, it begins to cut a circular hole in some tree wherein to lay its eggs, which are usually two in number, and pure white. The tree generally in request for this purpose is the *semul* or cotton tree (*Bombax heptaphyllum* and *malabaricum*), although, sometimes, even the hard wooded *sâl* (*Shorea robusta*) is chosen ; the entrance hole is a neatly cut circle, either in the trunk or in some thick upright branch. The trees selected by these birds are not situated in the depths of the forests, but are detached on the outskirts, and what is curious in such a quarrelsome bird there are often three or four nests in the same tree. The eggs are hatched in about twenty-one days, and in the middle of March the young birds are about half fledged, and are then removed for sale. They are exceedingly easy to rear and soon become tolerably tame, although

some exhibit a rather savage propensity for biting one's fingers; as they grow up and become familiarised to confinement, they will even take a piece of sugar from between their feeder's lips; this is a trait worth noting, because, according to Bennett, it is not characteristic of the Ceylon bird, which he says is "*not easily domesticated*." This, however, is always greatly dependent upon the mode of training, many persons apparently believing that animals were created solely for the purpose of being tormented.

The nestling bird at two months old has the bill large, powerful, and massive, especially in the male, and of a coral red, inclining to dusky at the base above; there is an incipient dusky somewhat bristly narrow line from the eye to the nostril, but by no means approaching to black, while in some, there is no trace of it at all. A large elongated purplish red patch near the bend of the wing in both sexes even from the nest; in some, but not in all, there is a dusky indication of what at a later period will become the black demi-collar on the side of the neck; these are males. The sexes can be distinguished by a practised eye by the size and shape of the head; in the male, the forehead from the base of the bill backward to just behind the eyes is well arched, but thence passes back to the nape, flattened and straight, giving the head an elongated appearance; whereas in the female the head is both smaller, and well arched, from the base of the bill to the nape. There is likewise a marked difference in the form and massiveness of the beak; in the male it is wider along the culmen, and well rounded out on the sides; in the female it is flatter on the sides, that is to say, more compressed, and the culmen is consequently sharper; the lower mandible is punt-shaped in both sexes. At first the pupil of the eye is entirely black without any iris, but when about two months old, a pale ashy white iris begins to appear. Gradually from this time the white iris becomes more and more apparent, and is encircled by a faint narrow bluish outer border, and the edge of the eyelids granular and reddish. The feet are of a dull greyish leaden hue. Adult male, with forehead bright light green; sides of the head, nape, breast, belly, upper part of back dull ashy green; wings dark green, with an elongated dull purplish red streak rising near the bend of the wing; lower back, rump, tail coverts, and base of the tail above, bright green; the two centre feathers very long and tapering; bluish green above, but fading into dull yellow at the ends; second pair, green at base, passing into bright yellow; the rest yellow, and all of them bright yellow beneath; a well defined black demi-collar rising at the edge of the upper mandible and widening at the base of the lower mandible, where it turns round to

the side of the neck to meet a broad pale rose-coloured crescent at the back of the neck; bill large, massive, well curved from base to point, of a deep coral red; culmen and sides, well rounded; feet, dull yellowish grey; iris, bluish internally, then yellowish white; eyelids, narrow, granular, pale red. The female similar in coloring, but having no neck ring, and smaller.

Cry very loud and harsh. It is said that the collar is not apparent in the parrakeets until the third year, but mine exhibited it in the second year. This species arrives in the Dehra gardens every morning in great numbers from the Eastern Dhoon, returning in the afternoon to the forests. The black collar does not unite under the chin, nor is there any black patch on the throat.

This appears to be the bird which in Oude is also known by the name of the rai totah, and is brought for sale from the Terai jungles, below Nipal; in a wild state it is said to be rarely seen in that Province, clinging chiefly to hilly regions of the Sub-Himalaya. Lieut.-Col. Tytler, in *epistola*, described a specimen which he shot in Lucknow, and which he also misnames *P. Alexandri*. From his description, which however is very loose, it is easy to see that the bird was *P. sivalensis*, though he says the nuchal collar was *coral red* like the beak! The black demi-collar which in the Dhoon and Kumaon birds is well defined, is here also given as *a black edging*! Jerdon's *P. Alexandri* was also in all probability this bird.

No. 3.—*Palæornis sacer*. Hutton.

This bird, although common in the forest of Chunda-bun-i along the base of the Sivaliks in the Western Dhoon, appears to be as yet undescribed; it is known to the natives as the Chunda-bun-i totah, but is by them confounded with the preceding species. Tradition has it that many years ago when the Goorkhas held the district, some female fakir of the name of Chunda died, and was buried in this forest, and she being considered a very holy woman, the forest became sacred to her memory. This parrot I have tried for years to obtain, but always without success, although my shikaris have annually found the nests which were sure to be found empty when they returned to take the young ones. That it is distinct from *P. sivalensis*, there can be no doubt, as, the bird does not begin to cut its nest hole until the first days of April when the other is half fledged, which causes the natives, who cannot distinguish one from the other, to declare that *P. sivalensis*, with which they confound it, is *double brooded*! The nestling is said to have no wing spot, nor does it show it until the second year. Unlike *P. sivalensis*

this species appropriates a tree to itself, and will not permit others to breed near it; it usually selects a large peepul tree (*Ficus religiosa*). It is curious that, fond as the natives are of parrots, and although numbers from Kaladoongee are annually purchased by them, these two Dhoon birds are never captured; this arises from the opposition offered to the bird-catchers by the religious devotees who reside in various parts of the Dhoon, and who regard the birds with some degree of reverence on account of their breeding in the semul and peepul trees, both of which are sacred, and must be injured if the bird-catchers were allowed to cut into the wood to obtain the nests.

No. 4.—*Palæornis punjabi*. Hutton.

This is another totally distinct species, and is brought sometimes in large numbers in the adult stage from the foot of the Punjab hills about Kangra and other places. It is regarded by the natives as identical with those already noticed, but its cry is totally different, being much more feeble and slightly croaking. It is a more robust and, if anything, rather larger bird than *P. sivalensis*; the tint of green is somewhat darker and there is a slight tendency to a brick-dust colour in the nuchal collar. They will sometimes sit the whole day through without uttering any sound at all, whereas *P. sivalensis* can scarcely hold its tongue for ten minutes together, and is almost always on the move.

No. 5.—*Palæornis vindhiana*. Hutton.

Of this species I have seen but one specimen and that was a half-fledged nestling brought to me for sale at Monghyr many years ago. I have noticed it as a distinct species from the fact of its being half-fledged in the middle of December, which shows that the nest hole must have been cut in the beginning of November, at least two months earlier than any of the preceding birds. The general plumage was deep green with an elongated red patch near the bend of the wing; the bill strong and coral red. It was taken from the range of hills at the back of Monghyr; being then on my way to Calcutta, I did not purchase, and have failed to procure a specimen since.

No. 6.—*Palæornis torquatus* ?

(The ring-necked Parrakeet.)

Syn.	<i>P. torquatus</i>	...	Daubenton Pl. Enl.
	<i>Psittaca torquata</i>	...	Brisson.
	<i>Psittacus Alexandri</i>	...	var B. Lath. apud Blyth.
	<i>Ps. cubicularis</i>	...	Hasselquist.
	<i>Ps. docilis</i>	...	African Rose Ring, apud Gray.
	Var Sulphur Parrakeet		Shaw.

Sybar of S. India, Jerdon ; ? *Sybar* of Dhoon and Mussooree ; plains of India, Arracan, Tenasserim, and Malayan Peninsula to the latitude of Pinang. (Blyth's Catalogue.)

This species as at present recognised by naturalists, although common in the Dehra Dhoon throughout the year, never ascends the hills even in the breeding season ; in the Dhoon it breeds in April and even earlier, the young being brought for sale about the beginning of May. It is known in the Dhoon as the *Sybar totah*, and is an especial favorite with the natives. It has a shrill clamorous cry which it utters on the wing and is of very rapid flight, shooting past one with a rushing sound and scarcely seen before it is gone again. In the gardens and grain fields it is very destructive, settling on the stalks of the bending corn, and not content with a few grains, it wantonly cuts off the ears and strews them in numbers on the ground.

At the pairing season the female of this species becomes the most affected creature possible, twisting herself into all sorts of ridiculous postures in order, apparently, to attract the notice of her sweetheart, and uttering a low twittering note the while, in the most approved style of flirtation, while her wings are half spread and her head kept rolling from side to side in demi-gradations ; the male sitting quietly by her side looking on with wonder as if fairly taken a-back,—and wondering to see her make such a guy of herself. I have watched them during these courtships until I have felt humiliated at seeing how closely the follies of mankind resembled those of the brute creation. The only return the male made to these antics was scratching the top of her head with the point of his beak, and joining his bill to hers in a loving kiss.

The *Sybar* never acquires a wing spot even at maturity and the ring round the neck, which is a miniature of that of *P. Alexandri* (verus) does not appear until the bird is two years old. Most writers say the third year, but this is erroneous, as from the hatching in one year to the breeding season of the third, is exactly two years, and it is then that the ring appears.

The nestling is of a uniform pale green, without any marking whatever ; the tail feathers bluish and the bill pale coral red above, black inside the mouth and at the base of the lower mandible ; the feet, plumbeous grey.

The mature male is a handsome bird of graceful form, with a black curved line springing from the gape and passing round the side of the neck to a little beyond the eye ; these two lines are well defined and are united by a black patch beneath the

chin ; this black demi-collar is met on the sides of the neck by another demi-collar from behind of a bright brick-red (*not rose*), the ends of the two collars a little overlapping each other. Bill coral red above, the edges bordered with a dusky black stripe, extending from the gape to the tip ; *the lower mandible, entirely dusky black*. A narrow black bristly line from the nostril to the eye. Iris, watery blue ; eyelid, granulated and pale red. Fore-head, top of the head, the cheeks, flanks, and thighs, pale light emerald green ; the nape and neck as far as the red ring, and the sides of the head and neck within the black ring overlaid with soft cornelian or azure blue. Top of the throat in front beneath the chin-patch, pale canary yellow ; breast, faint dusky green, as also the back, the feathers of which are marked with many lines like watered silk ; rump, bright soft green ; centre tail feathers, faint bluish green for the basal third, dull blue for the remainder, but narrowly bordered and tipped with faint yellowish ; the next feather on each side also dull blue above ; the others full green on the outer webs, which are narrow and yellowish on the inner and broader webs ; tail beneath, dull canary yellow ; wing quills, dark green, the shaft blackish, the external webs faintly tinged yellow at the extreme edge ; tertiaries and greater wing coverts, dull yellowish green, overlaid on the coverts in some individuals with a bluish tinge ; wing lining, canary yellow ; wing from bend, 6·75 inches ; length over all, 15·6 inches ; tail, 10 inches ; feet, grey. The female wants the collar, but there is a faint yellow ring instead ; length 16 inches ; tail, 10 to 10·25 inches ; wing from bend, 6·5 inches ; no azure blue tint on the head.

Bennett when speaking of *P. torquatus* of Ceylon, says it is "far more common than the Alexandrine bird, and appears to be dispersed over a much greater extent of territory, being found not only in India and as far eastward as Manilla, but also, if the reports of travellers are to be credited, throughout a large portion of Africa, and even on the Coast of Senegal. It would seem indeed to be extremely abundant in this last locality, and to be from thence most frequently imported into Europe. It is consequently known in France by the name of the Perruche-de-Senegal." (Gard. Menag. Zool. Soc.)

Unfortunately, however, it appears that "the reports of travellers" are *not* to "be credited," the African bird being now recognised as distinct under the name of *Palaeornis docilis* (Gray) this being the true *rose-ring*, while that of Ceylon and Southern India is the *ring-necked* Parrakeet. It is at present, I think, very doubtful whether our North-Western bird is *P. torquatus*. No doubt Jerdon has described it as such, but at

the same time his description does not apply at all correctly to the North-Western bird, and it would seem as if he had described the southern species and taken it for granted that the northern bird was the same.

One of these parrots kept by a buniyah or grain-seller in the Bazaar at Neemuch, in Western India, came to a curious end, and one that nearly frightened its owner out of his wits. At night when the man lay down to sleep, the parrot's iron cage with a cloth thrown over it was as usual placed beside his bed, but in the morning dire was the fright of the buniyah when on removing the cloth, no parrot appeared to greet him, but in its stead, lay coiled up a hideous *cobra*. The snake being hungry had squeezed itself in between the bars, but having swallowed the bird, he had become too corpulent to squeeze out again.

Jerdon says nothing of the black border to the upper mandible, nor of the black under mandible.

Palæornis schisticeps. *Hodgson.*

(Himalayan Parrakeet.)

Syn.

P. schisticeps ... *Hodgs. As. Res. XIX., 178.*

Conurus himalayanus ... ? *Lesson Belang. Voy. apud Blyth Cat.*

Madhana Syga, Nepal ... *Paharee Tooia*, Mussooree.

These birds, like the males of *P. bengalensis*, vary greatly in the colouring of the head from the nestling state to maturity. When fully adult, the name of *P. melanocephala* would be even more applicable than the present one, for there is then no slate colour on the forehead. Although a true mountaineer, it descends in the winter season to the gardens and groves around Dehra and is often mixed up with the flocks of *P. bengalensis* and *P. torquatus*; but in the early spring they return to the hills which they never at any season entirely quit, and breed in April and May. The tree most usually selected is a large species of gum-yielding *Bauhinia*, each tree harbouring but one pair of birds. The nestlings, and even many of the old birds while sitting, are destroyed in great numbers by some animal of the Marten or weasel kind, most probably *Martes flavigula*. If the destroyer be this animal, it must withdraw the birds from their nests by its fore-paws as it could not introduce the head.

When first taken from the nest and about half fledged, the young birds are dull green, with a very faint tinge of slaty on the head, but not always so. At about a year old or even less, the male has the entire head of a pale slaty colour; the base

of the upper mandible is pale red, with a sharp yellow tip ; the under mandible is pale yellow throughout, or more correctly, the upper mandible is pale yellow, with a faint rosy blush on the sides near the base.

The plumage above is dull green, palest on the neck ; the quills are dusky, with the outer webs green and narrowly edged with yellow ; under parts, pale yellowish green ; the basal two-thirds of the central tail feathers are dull bluish green, with the terminal third, bright yellow. There is at this age no red spot on the wing, and indeed it is very uncertain at what age it appears, as I have kept males until full four years old and yet saw no trace of it.

The adult male has the whole head of a dusky blue black with a bordering of deep black, forming a well-defined ring or collar arising from the base of the bill, but not detached from the black cap ; below this black ring the colour of the neck is of a faint verditer green, deepening in intensity as it descends to the back, wing-coverts, and tertiaries ; on the wing a small purplish maroon coloured spot ; wing quills, dusky green on the inner webs, full green on the outer, with narrow yellow edging both within and without ; shafts, dark. Wing quills obtusely rounded at the ends ; rump and upper tail coverts, light green ; basal two-thirds of the central tail feathers, blue green ; the terminal third, bright yellow ; the next feather is yellow with the basal half of the outer web green ; the rest of the feathers yellow, with the outer web green nearly to the end ; tertiaries edged with yellow. Chin and throat black, lower parts, pale, yellowish green ; tail beneath, bright yellow. Feet, grey. Upper mandible, bright red, at the base with a yellow tip ; lower one, yellow. Length, about 16·75 inches ; tail, 10·75 inches ; wing, 6·5 inches.

The female has no wing spot and head green.

Like other parrakeets this species as soon as the young can fly and feed themselves, gathers into flocks varying in numbers ; the flight like that of *P. torquatus*, is extremely rapid, and their shrill screams as they cleave the air and thread the mazes of the forest are often deafening and harsh. They are fond of the wild hill-cherries, the ripe berries of *Laurus lanceolatus*, *Ficus venosa*, the wild hill custard apple, wild pear, acorns, and several other kinds of forest fruits and seeds. According to Jerdon, Adams says, wheat is among its favourite food, which I am inclined to doubt, as I have never yet seen them settling on such crops, neither would my captives eat the grain.

The flight where the forest is at all close is below the branches of the forest trees, and considering the velocity with which

they move, it is wonderful how they manage to thread their tortuous course among them; yet they do so, and when wishing to alight, they suddenly, as if with one consent, sweep upwards into the branches of some tall tree; where the forest is open and the trees scattered, they pursue a higher flight and easily evade the foliage, twisting and turning in and out until a batch of fruit is found when, with one wild shrill scream, they instantly alight as if by word of command.

Palæornis bengalensis.

Syn.	Psittaca bengalensis	...	Brisson.	
	Palæornis bengalensis	...	Linn. apud Sclater.	
	Psittacus erythrocephalus	...	Gmel.	
	Ps. ginginianus	...	Latham.	
	Ps. rhodocephalus	...	Shaw.	
	var Ps. narcissus	...	Latham.	
	Palæornis rosa	...	Bodd. apud Jerdon.	
	Psittacus cyanocephalus	...	Linn.	} Female.
	Ps. flavitorques	...	Shaw.	
	Ps. annulatus	...	Kuhl	
	Palæornis flavicollaris	...	Franklin	

Native names *Faridi*, Beng; *Tin Suga*, Nepal; *Tuya*, Mussooree; *Tuya totah*, S. India, Jerdon.

Should there eventually be found any specific difference between the Southern and North-Western birds, the former will probably be *P. bengalensis* and the latter *P. rosa*.*

Hilly regions of all India, apud Blyth; Assam, Sylhet, Arracan. Tenasserim, also Dehra Doon, Lower Mussooree, and Neemuch.

This with us is, properly speaking, a Dehra Dhoon species, although many come up into the hills to about 5,500 ft. to breed, arriving about the end of March, and leaving, the majority, to breed below in the Dhoon.

In the hills they begin boring their nest-holes early in April, and by the end of May the young are sufficiently advanced to be taken from the nest. In the Dhoon they are ready rather earlier, being brought up for sale about the middle of May, when numbers are disposed of at from four to eight annas each. They lay from two to four eggs, of a pure white, and seem to breed in a variety of trees such as *Andromeda ovalifolia* and other soft-wooded trees, yet not turning even from the oak if they can find a soft semi-decayed spot. One pair bored a hole in an

* There are certainly two species—*P. bengalensis*, Gmel., which I have as yet only seen from Sikhim, Nepal, Assam, and Burmah—and *P. purpureus*, Mül. (= *rosa*, Bodd.) from the rest of India.—ED., S. F.

Andromeda, early in April, and after completing the work, for some reason abandoned it; in about a week or ten days, however, they returned and took possession, but were finally driven out by a pair of *Picus brunnifrons* which in turn, after two or three days, likewise abandoned it; the parrots however returned no more, and the hole remained unoccupied. The nestling bird has a pale yellow beak, but neither wingspot nor coloured head; it is uniformly of a pale yellowish green, with a still lighter coloured ring round the neck, and the upper surface of the tail exhibits a little blue.

In the second year the head becomes of a fine bluish cast, with a yellow collar round the neck, when it becomes the *P. cyanocephalus*, and in the third year, the head of the male becomes a most beautiful rich peach blossom, shading off to the black ring into a soft azure blue. In the third year the full plumage of the adult is acquired, and each subsequent year, for sometime, only adds to its richness of colouring.

In the male the upper mandible is yellow, the lower one the same, but sometimes with a dusky spot; the entire head full rich roseate peach blossom, with plum bloom overlaying the back and sides of the head; a black patch on the chin, the lower corners of which throw off a narrow black line which encircles the roseate head; immediately below this ring is another of verditer green, but not meeting on the throat, from whence the whole fore-neck, breast, and abdomen are yellow green; the whole of the back, as far as the rump, is of a deeper or dingy yellow green; rump light bluish, with a tinge of verditer; wings green, slightly tinged on the shoulder and wing coverts with verditer; quills, dull green, dusky on the inner webs, faintly edged externally with yellow; a narrow red elongated spot on the shoulder of the wing; two centre tail feathers above, cobalt blue, with about two inches of the end dull whitish; the next pair pale yellow at the end (*not blue*, as Jerdon says,); tail feathers beneath, with the central pair, dull blue, with dirty white extremity, the others yellow. There is much variation in the brightness of colouring in different specimens.

The female has the head plum blue and has no black collar; there is, however, a pale yellow demi-ring (hence Franklin's name of *P. flavicollaris*). Length over all in the male, between 14 and 15 inches; wing, full $5\frac{1}{2}$ inches; tail, $9\frac{3}{4}$ inches (Jerdon gives only $8\frac{1}{2}$ inches).

The food, as in all the others, consists of fruits and grains. The flight is rapid and the note less harsh and far more musical than in either *P. torquatus*? or *P. schisticeps*. They readily learn to whistle tunes, and I possessed one that whistled

"*Jim Crow*," "*Polly put the Kettle On*," and other familiar airs capitally.

Palæornis Osbeckii.

* Syn. *P. barbatus* ... Swains. Ill. Orn. Daub. Pl.
Enl., Blyth Cat.

<i>Ps. barbatus</i> ; <i>Ps. Pondicerianus</i>	... Gmel.
<i>Ps. bimaculatus</i>	... Sparrm.
<i>Ps. Javanicus</i>	... Osbeck.
<i>Ps. Osbeckii</i>	... Latham.
<i>P. nigrirostris</i>	... Hodgson, female.
<i>P. modestus</i>	... Fraser, P. Z. S., young female.
<i>Bolurus barbatus</i>	... Bonap. Rev. Zool.
<i>Ps. mystaceus</i>	... Shaw. Hodgs. and Gray, Cat.
<i>P. Osbeckii</i>	... Horsf. Cat.

Mordna, *Kajla*, Hind ; *Imrit Bhela*, Nipal ; *Bettet*, Java, Hab., hilly parts of Bengal, Nipal, Assam, Sylhet, Arracan. Tenasserim, Malayan Peninsula, Sumatra, Java, and Borneo. (Apud Blyth.) Kumaon Terai ; known in North West Himalaya as *Madan Gour*.

I follow Dr. Horsfield in assigning this name in preference to either *P. javanicus*, *P. bimaculatus*, *P. barbatus*, or a host of other synonymes, partly because, as he says, M. Osbeck was the discoverer of the species and the first to give it a name (1757,) and because it is not, according to observers confined to Java. At the same time I much doubt whether the bird of Kumaon and Nipal, belongs to this species, deeming it more probable that these are distinct from the southern bird. It does not appear to occur to the westward of Kumaon and is brought thence to Mussooree for sale. The bird-catchers insist upon the black-billed bird being distinct from the red billed, while at the same time they completely refute their own statement by acknowledging that both are procured from the same nest.

The nestling or half-fledged birds are brought to Mussooree in the end of May or early in June, so that allowing for the journey, the breeding season would appear to be March and April.

* This synonymy cannot possibly be accepted. The species Capt. Hutton refers to is, I think, *P. fasciatus*, Müll. The Javan bird *Javanicus*, Osb., *Osbeckii*, Lath., is distinct, while the Tenasserim bird, *melanorhynchus*, Wagler, as also the Bornean bird, are likewise probably equally so.—ED., S. F.

On *Phenicophaeus Pyrrhocephalus*. Forster.

By Vincent Legge, Esq., R. A.

This handsome malkoha, one of our rarest birds, is exclusively a denizen of forest or large secondary jungle, and has been thought hitherto to inhabit only the western and south-western districts of Ceylon. Layard notes it from the former part, Annals of Natural History, 1854, and speaks of it as very rare and frequenting the tops of high trees. He says that he could learn nothing of its habits or nidification from the natives. This accords with my experience of aboriginal knowledge on the subject; in those districts where I have shot it, I have found the natives quite ignorant about it, many of them never having seen it before. This arises from the fact of its existing in small numbers and being at the same time very shy and wary and an inhabitant of the *interior of the forest*. At the same time I have shewn the birds in my collection to intelligent natives and they have recognized it; nevertheless as I have shot it in company with villagers, well up in the birds of their neighbourhood, but who were totally ignorant about it, it must be allowed that taking its showy appearance into consideration, and the consequent likelihood of its not escaping observation, it is one of our rarest birds. Mr. Holdsworth in his Catalogue of Ceylon birds, Proceedings, Zoological Society, page 433, 1872, says, he saw one flying across a road in the Central Province. This proves that like many of our forest birds *Centropus chlororhynchus*, *Dicrurus lophorhinus*, *Toccus gingalensis*, *Chrysocolaptes Stricklandi* and others, it extends its range up to a considerable elevation.

It has been lately my good fortune to procure *Phenicophaeus pyrrhocephalus* in the splendid forests between Anaradhapoora and Trincomalie, a district which I was surprised to find very Ceylonese in the character of its Avifauna, the same spot yielding many island birds, such as *Oreocincla spiloptera*, *Rubigula melanictera*, *Xantholæma rubricapilla* and *Chrysocolaptes Stricklandi*, the latter in numbers. It was nevertheless a matter of some surprise to me to find this bird in the north of Ceylon, as I had become wedded to the belief that it was very local and quite a western inhabitant of our forests. It was as is usual, according to my experience, in pairs. While watching the movements and sprightly actions of a pair of *Dissemurus malabaricus*, one of these birds flew on to the limb of a lofty forest tree under which I was standing, and being partly obscured from my view by the leaves of an under-growing tree, so that I could only clearly

distinguish the tail, I took it for a hombrél, *Toccus gingalensis* of which there were numbers in the vicinity. I was, however, soon undeceived by seeing the brilliant crimson face contrasting with the brown leaves on which my prize had fallen, and thinking its mate was not far off, I remained perfectly still, and in another moment I heard a low "kaa," resembling one of the notes of our jay at home, and saw the second bird flying from limb to limb of the great forest trees around me, looking for its fallen companion, on alighting each time it uttered its low call and elevated its tail. It presently flew into the tree under which I stood and fell to my shot. The first killed bird, *the male*, was the smaller of the two and had the iris *deep clear brown*, the last *the female*, had a *pearl white eye* ! I have digressed from my subject into somewhat of a narrative on the shooting of these birds, simply to shew that they were a pair and evidently mated and consequently both adults.

In December, 1871, I met with a pair under similar circumstances, in forest, on the low hills of the south-west, not far from Galle. They were flushed from some low bushes in the jungle and flew, with short flights from tree to tree, one after the other, uttering a much harsher and louder cry than that of the female just alluded to. I procured both birds, the male with *dark brown iris* and the female with a *pure white*. The sexual organs in the male birds in both instances were well developed, and there was no appearance whatever of immaturity about their plumage. The measurements of the two southern birds were as follows :

Male—Total length, 17 inches; tail, 9·5; wing, 6; bill to gape, 1·5; tarsus 14; outer anterior toe, nearly 1.

Female—Total length, 18 inches; tail, 10·7; wing, 6·2; tarsus, 15; outer anterior toe, 1.

The tail of the male is imperfect, the bird being in moult, but the longest existing feather is one of the uropygials and is an old feather, and the short outermost feathers are nearly half inch shorter than the corresponding ones in the female.

The dimensions of the pair shot in the north-east shew the same disparity in size, and are as follows :

Male—Total length, 17·3 inches; tail, 10; wing, 6; tarsus, 1·5; outer anterior toe, 1.

Female—Total length, 18·1 inches; tail, 11·3; wing, 6·2; tarsus, 1½. The tail of the male in this case, I regret to say, is imperfect, but as before noted the longest existing feather is an old one and one of the centre ones. Taking these circumstances into consideration together with the difference in the wing, it appears very apparent that the female is the larger bird of the two, but until

more specimens are shot and carefully measured and compared. I would not state that this is a constant feature.

On the other hand, with regard to the iris, there is *no doubt whatever* that in the female it is pure white, and in the male dark brown. In both cases that have come under my notice as I have shewn the birds were pairs, and in the adult state. Every naturalist knows how the eye changes in many immature birds notably in Raptores, but in the case of *Phœnicophaus pyrrhcephalus*, the difference of colour above noticed is undoubtedly due to sex and not to age. The colour of the iris seems to have been a problem since the bird was discovered, arising no doubt from the fact of single specimens having always been procured. The remarks of Mr. Holdsworth in his catalogue above quoted bear me out in my experience. He says: "Layard says, the irides of this cuckoo are white; but in the living bird* (*a male*) I had, they were *brown*, and they are marked as of that colour in specimens in Lord Walden's collection." These latter are doubtless *males*.

This bird will no doubt be found to inhabit the forests round the south-eastern and eastern slopes of the mountain zone as well as those of the west, south-west, and north-east in which localities I have procured it.

Notes on a Collection of Eggs

Made in and about Murree. By Captains Cock & C. H. T. Marshall.

In the spring of 1872 we went in for steady birds—nesting all round Murree, from the middle of May to the end of July. As we began rather late, we missed several of the early breeders. To most of our Indian readers the situation of Murree is well known, but for the benefit of those who do not know, it may be as well to describe its whereabouts. It is the most north-westerly hill station in British India, and is on the high road to Kashmir, the highest point is about 7,500 feet. Most of the nests were found at a lower elevation and a large number came from a tract of thick jungle near the river Jhelum which flows through a valley about fourteen miles from Murree towards Kashmir. We did not go over a very large area, but as will be seen below, there was plenty to be done, and we were well rewarded as we obtained, in addition to several rare species, the eggs of one or two birds about whose breeding habits we have seen no

* One brought to him by some natives, who had captured it.

previous record, such as *Pteruthius erythropterus*, *Pericrocotus roseus*, *Cephalopyrus flammiceps*. We have noted the total result of our researches, not omitting the commoner species, thinking the record might be interesting on account of locality, as the list shews several birds which breed in the hills and the plains. We have in most instances followed Jerdon's numbers and nomenclature, any deviation has been duly noted. The measurements of the eggs are noted in inches and decimals of inches. In addition to the eggs named below, we were fortunate enough to get those of *Perdix Hodgsoniae*, from Captain Barnes of the 10th Bengal Lancers. He obtained them at an elevation of 18,000 feet in Thibet. He got nine eggs but eat seven and only preserved the shells of two, which are now in our collection. They were found on the 12th of July, and were fresh. They are paler than the eggs of *Perdix cinerea*, and a more regular oval in shape.

No. 6.—*Neophron ginginianus*.

Found a nest in a cliff in May, with two fresh eggs, at an elevation of about 4,000 feet.

No. 17.—*Tinnunculus alaudarius*.

The kestrel usually builds in rocks, but we found a nest about sixty feet up a pine tree, with five hard set eggs in it, of a much duller dirtier brown than usual. This was on the 14th of June. The nest was apparently one originally belonging to *Corvus culminatus*.

No. 23.—*Micronisus badius*.

On May 18th, took a nest belonging to this species, containing two bluish-white eggs, from the top of a high pine tree.

No. 75.—*Ephialtes gymnopus*.

We found a nest containing two eggs, in a dead tree, about fifteen feet from the ground, on the 1st of June, low down the hill side. The bird* shot off the nest answers exactly to Hume's description of *gymnopus*; the elevation at which the nest was found was about 6,000 feet. The eggs are white and 1.3 in length by 1.1 breadth. We also shot an undoubted *E. plumipes*, but could not find a nest of this species.

No. 80.—*Glaucidium brodei*.

We were unable to find the eggs of this species, but on the 22nd of June, we secured three full fledged young ones in a hole in a dead tree. We managed to rear these until about the mid-

* I have examined this specimen, it is clearly *spilocephalus*, Blyth, which probably equals *gymnopus*. Gray. Ed., S. F.

dle of October when they died suddenly, I fear from too high feeding. The nest was at an elevation of between 5 and 6,000 feet.

No. 85.—*Hirundo erythropgia*.

This is the house swallow of Murree—breeds under all the eaves. Lays pure white eggs in June.

No. 114 *bis*.—*Caprimulgus Unwini*. *Hume*.

We found three nests of this bird on the bare ground in the valleys, the eggs are perfect ovals, greyish white, covered with differently shaded blackish blotches, being 1.15 long and .8 broad. Breeds in May, about 5,000 feet up.

No. 150.—*Palæornis schisticeps*.

These nests were invariably very high up in tall trees, most of them in newly made holes. All that we found this year contained young birds. We got the egg last year. It is 1.15 long by .95 broad. This species breeds at the latter end of April. Elevation, 6 to 7,000 feet.

No. 154.—*Picus himalayanus*.

This breeds early and very high up in the trees. All the nests we found at the end of May had nearly full fledged young in them. Elevation, about 7,000 to 7,500 feet.

No. 157.—*Picus Macii*.

One nest taken on June 2nd, in a hole in an oak tree; three eggs somewhat hard sat. Length, .9 by .65. 6,500 elevation.

No. 170.—*Gecinus squamatus*.

Several nests in the month of June, all with young. We got the eggs last year in May. They are somewhat smaller than those of the next species. The holes are always about forty or fifty feet up the trees, at all elevations, from 5 to 7,000 feet.

No. 172.—*Gecinus occipitalis*.

This species breeds very low down in trees, the hole in which the nest was, that we found on the 28th of May, being only three feet from the ground: it contained five fresh glossy white eggs, long, and pointed at the thinner end. They measured 1.25 in length and .85 in breadth. Elevation, 7,000 feet.

No. 191.—*Megalaima Marshallorum*. *Swinhoe*.

Lays in the latter end of June and beginning of July, the eggs are four in number, pure white, and 1.4 by 1. Most of the nests were in newly made holes, in horse chesnut trees, some twenty or thirty feet from the ground. Elevation, averaging 6,000 feet.

No. 199.—*Cuculus canorus*.

We found the eggs of this bird in the nests of *Pratincola ferrea*, and *Agrodroma griseo-rufescens*. (Jerdoni Finsch.)

No. 234.—*Arachnethra asiatica*.

Found several nests of this species in May and June, in the lower valleys, about 4,000 feet up.

No. 243.—*Certhia himalayana*.

This is a most difficult nest to find, as the little bird always chooses crevices where the bark has been broken or bulged out, some forty or fifty feet from the ground, and generally on tall oak trees which have no branches within forty feet of their roots. There were young in the few nests we found. Captain Cock secured the eggs in Kashmir: they are very small, being .6 by .45; round, white, with numerous red spots. The nests we found were in the highest part of Murree, about 7,200 feet.

No. 254.—*Upupa epops*.

Two nests in holes in trees. In one instance we watched the cock bringing food to the hen, whom we afterwards caught on the nest. This would go to prove the theory advanced that the hoopoe, like the hornbill, remains on her nest all the time until the eggs are hatched. Elevation, 7,000 feet.

No. 257.—*Lanius erythronotus*.

Found numerous nests in the valleys in May and June, between 4 and 5,000 feet up.

No. 258.—*Lanius tephronotus*.

This species much resembles *L. erythronotus*, but the eggs differ considerably, being more creamy-white, blotched and spotted (more particularly at the larger end) with pale red and grey. They are the same size as those of the preceding species. Lays in the beginning of July, at the same elevation as *L. erythronotus*.

No. 260.—*Lanius Hardwickii*.

These little shrikes breed in the hills as well as the plains up to 5,000 feet high.

No. 275.—*Pericrocotus roseus*.

The rosy minivet builds a beautifully little shallow cup-shaped nest, the outer edge being quite narrow and pointed. The external covering of the nest is fine pieces of lichen fastened on with cobwebs. It was found on the 12th of June and contained three fresh eggs, white with greyish brown spots and blotches sparse-

ly scattered about the larger end, the length is $\cdot 8$ by $\cdot 55$; 5,000 feet up.

No. 280.—*Dicrurus longicaudatus*.

Breeds in May, in almost inaccessible places, about 7,000 feet up, choosing a thin fork at the outermost end of a bough about fifty or sixty feet from the ground and always on trees that have no lower branches. The nest is almost invisible from below, as it is very neatly built on the top of the fork ; and when the female sits on it, she places her tail down the bough so as entirely to hide herself. The eggs are only to be obtained either by climbing higher up the tree than the nest is and extracting the eggs by means of a small muslin bag at the end of a long stick, or else by lashing the bough on which the nest is to an upper bough as the climber goes along so as to make it strong enough to support him. The nest is much neater than that of *D. macrocerus* ; the eggs are light salmon coloured, with brick red blotches sparsely scattered over them, and are $\cdot 95$ by $\cdot 7$.

No. 288.—*Tchitrea paradisea*.

Ten nests in May, June, and July. The female was in *all* instances *chestnut*, with a white breast and short tail. This is one of the commonest nests to be got about Murree. Average elevation, 5,000 feet.

No. 291.—*Leucocerca fuscoventris*.

The nest of this species differs from that of *L. aureola*, being the shape of an inverted cone, beautifully made, lined with the finest grass, and covered with cobwebs, situated in a clump of thin branches. Eggs like those of *L. aureola*, only smaller and rounder. These nests are found in the lower ranges, at about 5,000 feet up.

No. 292.—*Leucocerca aureola*.

The nest of the fantail is very neatly made, shallow cup-shaped ; carefully covered outside with cobwebs. It is built on a thin branch about ten feet up a tree. The eggs much resemble diminutive shrike's eggs. Breeds in June.

No. 295.—*Cryptolopha cinereocapilla*.

Several nests answering to Jerdon's description, like watch pockets fastened up on the trees, 6 to 7,000 feet up.

No. 301.—*Eumyias melanops*.

The verditer fly-catcher always builds under the small wooden bridges that cross the hill paths. We found more than half a dozen

nests all situated under these bridges. The eggs are pale pink and sometimes have a few fine speckles on them. Breeds in June, at all elevations, from 4 to 7,000 feet.

No. 310.—*Muscicapula superciliaris*.

Sixteen or eighteen nests between the beginning of May and the end of June, in small holes in rotten branches, or trunks of trees, sometimes close to the ground, sometimes very high up. Eggs, five in number, of a yellowish brown colour, almost round, about .6 long and .45 broad. The general elevation averages 6,500 feet; they do not build in the lower hills.

No. 348.—*Myiophonus Temminckii*.

Several nests found in June, near running streams, about 4,000 feet up. Full description will be found in Jerdon.

No. 351.—*Petrocossyphus cyaneus*.

These eggs have not, we think, been recorded before from India. There is a description of them in Sharpe's and Dresser's Birds of Europe. We found these in a low stone wall at no great elevation, four eggs, very pale blue, with a few small brown specks; they are 1.1 in length and .75 in breadth. These eggs were taken early in June.

No. 353.—*Orocœtes cinclorhynchus*.

Builds in banks under roots or tufts of grass, a neat cup-shaped nest. The eggs are salmon coloured, with a few darker red specks and spots. The nests we found were made entirely of dead pine leaves, beautifully woven together. Elevation, 6,000 feet.

No. 355.—*Geocichla citrina*.

Builds about the beginning of June in the fork of a low tree about six feet up. Lays three eggs, pale greenish white, finely speckled with rufous brown, forming a patch at the larger end. 1 inch in length, .8 in breadth.

No. 356.—*Geocichla unicolor*.

Several nests in June made of moss and fern stalks, lined with root fibres. Eggs somewhat resembling those of *M. bulbul*. Only smaller, rounder, and more lightly speckled. They are the same size as those of *P. cyaneus*.

No. 361.—*Merula bulbul*.

Breeds all over the Murree hills, from middle of April till July.

No. 363.—*Merula castanea*.

Two nests in banks, in the beginning of June; eggs very similar to *M. bulbul*, but somewhat larger, being 1.25 by .8. Captain Cock got two nests in the Sindh valley, Kashmir. It is peculiar that this species always breeds in banks. All the meruline birds breed about 5,000 to 7,000 feet up.

No. 392.—*Stachyris pyrrhops*.

Nest found in low ground, about 100 yards from the river Jhelum, situated in a low bush externally composed of broad dry reed leaves, and interiorly of fine grass, cup-shaped. Eggs four in number, long, oval, white, with a few reddish specks at the larger end. Length .7, breadth .5. Lays in the latter end of June, 4,000 feet up.

No. 411.—*Garrulax albogularis*.

This was the most beautiful egg taken this season, being of a rich deep glossy greenish blue colour. The nest is composed of fresh ivy twigs with the leaves on, tightly woven together. The birds breed on small trees not high up at the end of a branch. While their nests were being examined, they came round in flocks to see what was happening, chattering and making that peculiar laughing note from which this genus takes its name. They are even gregarious in the breeding season, and all the nests were found pretty near each other, about 6,000 feet up.

No. 418.—*Trochalopteron variegatum*.

The nidification of this *Trochalopteron* was apparently unknown before. We found one nest on the 15th of June, about twenty feet up a spruce fir at the extremity of the bough. Nest, deep cup-shaped, solidly built of grass roets and twigs, the bird sits close. Eggs, light greenish blue, sparingly spotted with pale purple, the same size as those of *M. castanea*.

No. 425.—*Trochalopteron lineatum*.

One of the commonest nests about Murree. Breeds from May to end of July.

No. 429.—*Sibia capistrata*.

The egg of this bird was we believe previously unknown, and it was a mere chance that we found the whereabouts of their nests, as they breed high up in the spruce firs at the outer end of a bough. The nest is neatly made of moss, lined with stalks of the maiden hair fern. The eggs are pale blue, spotted and blotched with pale and reddish brown. They are .95 in length and .7 in breadth. This species breeds in June, about 7,000 feet up.

No. 444.—*Hypsipetes psaroides*.

Numerous nests of this species were found agreeing well with Jerdon's description. They breed in May and June, never above 6,000 feet.

No. 458.—*Otocompsa leucogenys*.

Breeds in the valleys at about 4,000 or 5,000 feet up in the end of June. Lays four eggs with a white ground, very thickly blotched with claret red. Nest, roughly made of grass and roots, in low bushes.

No. 461.—*Pycnonotus pygmæus*. *Hodg.*

This bulbul breeds in large numbers in the lower hills.

No. 470.—*Oriolus kundoo*.

Several nests of the common oriole were found about Murree, at low elevations.

No. 475.—*Copsychus saularis*.

Breeds freely at low elevations all round Murree.

No. 483.—*Pratincola indica*.

This bird breeds in the valleys. We obtained a large series of eggs. *Vide P. ferrea*.

No. 486.—*Pratincola ferrea*.

We took numerous nests of this species between the 1st of May and the end of July. They breed in banks. Their eggs resemble those of *P. indica*, pale blue, with a few russet spots at the larger end. We twice found the egg of *cuculus canorus* in this bird's nest. Elevation, 7,000 feet.

No. 547.—*Suya criniger*.

Nest built in high jungle grass loosely, but neatly made of very fine grass and cobwebs, opening at one side near the top. Five eggs, white, with fine red spots at the larger end, forming a ring. Breeds late in June, at about 4,000 feet elevation.

No. 563.—*Reguloides occipitalis*.

The nest of these little warblers are very difficult to find, and the only chance is to sit down and watch the bird to its hole. It generally breeds at the roots of large trees or in stone walls, building far in, a dome-shaped nest, and laying five pure white eggs similar in size to those of *Muscicapula superciliaris*. We obtained about a dozen nests. Breeds at high elevations.

No. 604.—*Agrodroma griseorufescens*.—
Hume. Jerdoni, Finsch.

Rough made nest of grass. Breeds from May till middle of July, low down the hill side. Lays four eggs, much resembling the eggs of other species of this family. We took six nests, and twice found the common cuckoo's eggs in them. They do not breed above 6,000 feet up.

No. 609.—*Pteruthius erythropterus*.

There is no record about the breeding habits of this species. It is an exceedingly difficult nest to find, and it was only by long and careful watching, through field glasses, that Captain Cock was able to find that there was a nest at the top of a very high chesnut tree as the birds kept flying to and fro with building materials in their beaks. The nest is most skilfully concealed being at the top of the tree, with bunches of leaves both above and below. The nest, like the orioles, is built pendant in a fork. It is somewhat roughly made of moss and hair. The eggs are pinky white, blotched with red, forming in some a ring round the larger end. They average .9 in length and .65 in breadth. We were fortunate enough to secure two nests, both were more than sixty feet from the ground. Breeds in the end of May, at an elevation of 7,000 feet.

No. 631.—*Zosterops palpebrosus*.

The nest is figured in Gould's Birds of Asia. The eggs are pale blue, laid in June, at about 6,000 feet up.

No. 633.—*Cephalopyrus flammiceps*.

On the 25th May we found the nest of this species in a hole in a rotten sycamore tree, about fifteen feet from the ground. The nest was a neatly made cup-shaped one, formed principally of fine grass. We were unfortunately too late for the eggs as we found four nearly fledged young ones, shewing that these birds lay about the 15th of April. Elevation, 7,000 feet.

No. 634.—*Ogithaliscus erythrocephalus*.

Builds a globular nest, of moss and hair and feathers, in thorny bushes. The eggs we found were pinkish white, with a ring of obsolete brown spots at the larger end. Size, .55 by .3. Lays in May.

No. 644.—*Parus monticolus*.

Breeds early in May in holes, in walls, and trees, laying white eggs, covered with red spots.

No. 669.—*Garrulus bispecularis*.

This species is an early breeder, for all the nests we found about the end of May had young ones.

No. 670.—*Garrulus lanceolatus*.

This species breeds in great numbers all over the Murree Hills.

No. 671 *bis*.—*Uroccissa flavirostris*.

Breeds in trees about twenty feet up, generally near the top of a hill, in May and June.

No. 686.—*Acridotheres fuscus*.

This myna which takes the place of *A. tristis* in the higher hills, breeds always in holes in trees. We found five or six nests in June and early in July.

No. 708.—*Passer cinnamomeus*.

Lays in deserted swallows' nests and about houses. At Dhurm-sala this sparrow always builds in trees out in the forests.

No. 711.—*Passer flavicollis*.

This species breeds in the Hills, about Murree, in July.

No. 713.—*Emberiza cia*.

Several nests in the middle of June in low bushes or banks. Eggs resembling *E. citrinella*. Sharpe and Dresser say, *E. cia* does not breed in India. Next season I shall send home a series of birds and their eggs to decide the question, as I believe our bird at Murree is *E. cia*.

No. 718.—*Emberiza Stewarti*.

The nest is roughly made of roots and fibres situated in a low bush near the ground; the eggs four in number are dusky white, spotted and blotched with different shades of black and grey. Size .8 by .6. Breeds in the latter end of June, from 5 to 7,000 feet up.

No. 724.—*Melophus melanicterus*.

Breeds in June in banks—nest made of grass. Eggs white, thickly mottled with brown.

No. 725.—*Hesperiphona icteroides*.

We were unlucky with this bird's nest. As the first one we found was a new one and the climber stupidly destroyed it, the next one had young ones. They breed very high up in the Himalayan spruce fir. Captain Cock got three eggs last year in Kashmir: they are white, beautifully marked with broad longitudinal dashes of light and deep rufous brown at the larger end. They are 1.05 long and .8 broad. These birds breed at high elevations, never under 7,000 feet.

No. 778.—*Sphenocercus sphenurus*.

The kokla breeds in spruce firs about Murree. The nest is usually about twenty feet up built by the trunk of the tree. It lays in June.

No. 784.—*Palumbus casiotis*.

Two nests taken about the middle of June; they breed in the valley of the Jhelum at a low elevation in dense thorny jungles. The egg resembles that of the English wood-pigeon size, 1.65 by 1.15.

No. 792.—*Turtur rupicola*.

This species breeds in June in the pine forests.

No. 795.—*Turtur suratensis*.

Breeds in the hills as well as in the plains.

No. 820.—*Caccabis chukor*.

Several nests. This bird is found in great numbers all round Murree.

Notes on some of the Indian Pipits.

By W. E. Brooks, Esq., C. E.

Last January, in walking over the barren treeless country south of Assensole, which is undulating, having the slack places terraced for paddy cultivation, I met in one of these small paddy fields a single example of *Corydalla Richardi*. I was struck with the unusual note which it uttered as it rose, and I therefore followed it and shot it.

The usual note of this species is not a loud, harsh, discordant one, as described by some author or other, I forget whom now, but is a soft double chirp, reminding one strongly of the note of a bunting. The flight is very undulating and strong. Of all small birds this one is the most difficult to shoot, from its excessive shyness; and unless the ground permits of a successful stalk, an approach within shot of a small bird gun, such as I use, is almost impossible. There the large wary pipit stands, with his head as high as possible, and his neck stretched to the uttermost to enable him to keep the best of all look-outs, and the moment forty yards is passed, that moment he flies, accompanied by any others within hearing of his note of alarm. However, by dint of extra heavy charges, and by creeping along under the edge bunds of the paddy fields, I managed to secure a few of this very fine pipit. The places frequented were low grounds occurring below jheels or *talaos*, the water constantly percolating through the reservoir bank kept the low grounds adjacent rather damp and in many places quite wet. Over a greater part of this low ground, the rice crop having been gathered, there now grew a small vetch with blue flower, entirely covering what had been the paddy field a couple of months before; and in these vetch fields, the large pipit of which I am speaking, delighted. Before retiring among the vetches to feed, they sat for some time as a rule, upon the little bunds which divided the fields, and when they did this, I found the best plan was to wait till the look-out was over and the birds had retired among the crops to feed. It was then possible to creep up within shot. In the same vetch fields, and also in the higher paddy fields all around were numbers of *Corydalla striolata*, and a few *Corydalla rufula*. Both these latter species are much more numerous all over this part of Bengal than *C. Richardi*. It is *C. striolata* which rises with the loud discordant note; and by the note alone it is easy to distinguish this species, so utterly unlike is it to that of any other pipit. *C. Richardi* and *C. striolata* are two pipits of wonderfully the same coloration, and of almost the same linear dimensions. After all, it is only by the long stout tarsus, and large foot with long straight hind claw, that the bird can be readily distinguished from its close ally, save, as I have before remarked, by the utterly different kind of note. In the shape of the foot and proportionate length of tarsus and hind claw, to the size of the bird, *C. rufula* strongly resembles *C. Richardi*. As Blyth justly remarks, one bird is an exact miniature of the other. But *C. striolata* has a shorter tarsus in proportion, more slender, and the foot is of much less proportionate spread: the hind claw too is shorter,

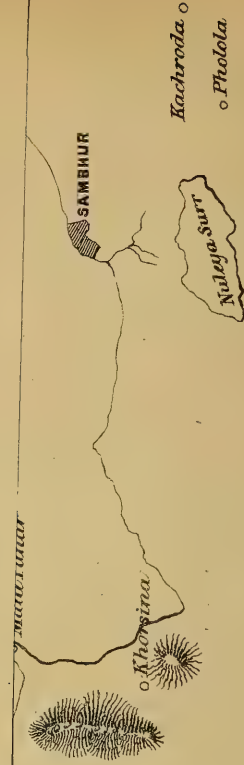
and much more curved and slender. A few dimensions here will not be out of place.

				Length.	Wing.	Tarsus.	Spread of foot.	Hind claw.
C. Richardi	male	...		7.25	3.4	1.17	2.22	.7
"	female	...		7.37	3.6	1.25	2.25	.65
"	male	...		7.5	3.72	1.25	2.35	.7
"	female	...		7.2	3.4	1.2	2.24	.72
C. Striolata	male	...		7.15	3.63	1.03	1.7	.42
"	female	...		6.9	3.5	1.07	1.76	.55
"	male	...		.....	3.25	.96	1.6	.43
"	female	...		.....	3.5	1.08	1.65	.48

The above measurements will give a good idea of the great difference in tarsus and hind claw between the two species. *C. rufula* is so much smaller than either of the others, that measurements of it are not necessary here. It generally measures about six inches in total length, and for its size has a large bill, and a singularly long strong tarsus, large foot, and hind claw for so small a pipit. It is a permanent resident from the south to the north of India and not, as far as I know, at all migratory like the other Indian pipits. I omitted noticing in the proper place, that the legs and feet of *C. Richardi* are not so fleshy in color as those of *C. striolata* and *C. rufula*; but are more yellowish, particularly the soles of the feet. The color of the inside of the mouth varies. This is generally a moderately bright yellow, but in some examples is pale flesh-colored. The latter are probably young birds.

SKETCH MAP OF THE **SAMBHUR LAKE,**

Scale, 5 miles to the inch.



Notes on the Birds of the Sambhur Lake & its vicinity.

By R. M. ADAM.

As the study of local avifaunas is of considerable importance to ornithologists, I purpose to record the birds which I have obtained, or observed, during my residence at Sambhur, extending over a period of three years.

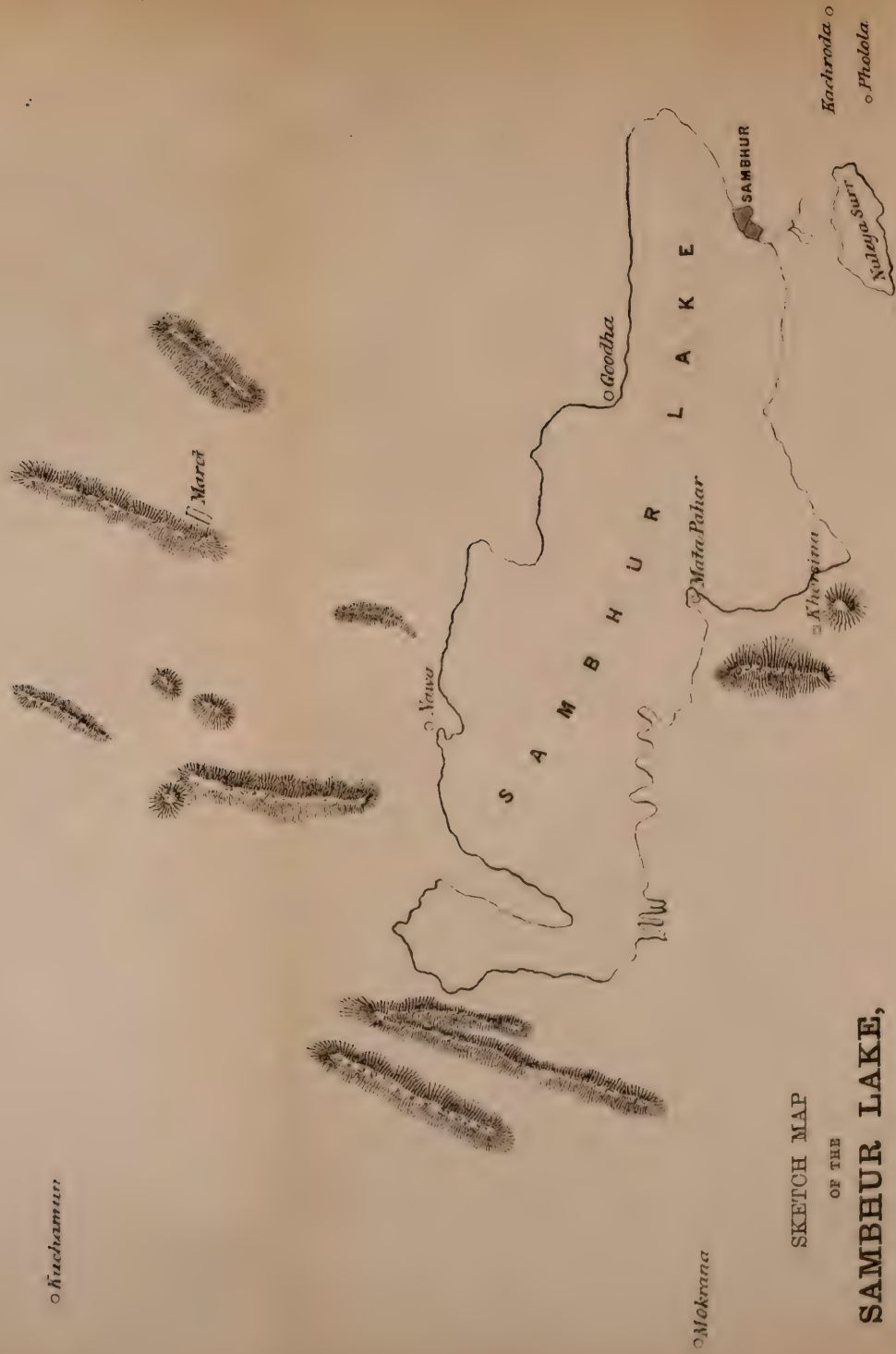
My very limited knowledge of ornithology prevents me from attempting to add any information of importance to that science: all that I attempt is to note the birds which I have seen or obtained here, and in a few cases to record something as to their habits and nidification.

Altogether I have noted the occurrence of 244 species; the number belonging to each order being as follows:

Raptores	...	...	...	26
Insessores	...	...	...
Fissirostres	...	...	...	15
Scansores	...	...	...	13
Tenuirostres	...	...	...	4
Dentirostres	...	...	...	69
Conirostres	...	...	...	28
			—	129
Gemitores	...	...	...	8
Rasores	...	...	...	8
Grallatores	...	...	...	51
Natatores	...	...	...	22

Until quite recently, little was known, and much less recorded, concerning this famous salt source. To illustrate this statement, I may mention that a member of Dr. Fawcett's committee, who lately made a hurried visit to the lake, remarked at dinner: "Well, it is strange how things will happen. About six weeks ago I was examining an old Indian, of some forty years' service, and amongst other questions I asked if a large salt lake did not exist somewhere in Central India, and he replied, 'very possibly there may be such a lake, but I have never heard of it,' "and now," said the M. P., "here I am drinking simkin on its edge."

The Sambhur Lake is situated in N. lat. 26° 58' and E. long. 75° 5'. All around, but principally to the west, are low-lying hills, which form a part of the Aravalli range, which runs in a north-westerly direction through Rajputana. To the north-west is a sandy tract called the Great Desert, with Sindé on its western, and the Punjab on its northern and western boundary. Taking the village of Dodo, 42 miles from Jeypur, in the



SKETCH MAP

OF THE

SAMBHUR LAKE,

Scale, 5 miles to the inch.

direction of Ajmere, the lake is 16 miles distant in a nearly northern direction. The surrounding country is arid and sterile to a degree.

Approaching Sambhur from the south, the country is sparsely cultivated, owing to the scarcity of water, while close to Sambhur there are a series of sand dunes covered with a stunted vegetation, and beyond, close to the lake edge and parallel to the town, is a fine belt of trees, with here and there a mass of green foliage belonging to a tope, or garden, or one of the numerous wells.

The soil in this neighbourhood is exceedingly fertile, and when favorable rainfalls occur, or when water can be had for irrigation, splendid crops are obtained; but an adequate supply of water is rarely obtained, the average rainfall here being about 12 inches, while further west, in Marwar, or the region of death, little or no rain ever falls, and water for irrigation is sometimes only obtained at a depth of over 800 feet from the surface.

The open wells in use about Sambhur for irrigation are excavations made in the fields about 30 or 40 feet in diameter and 20 feet deep. The sides of these are densely clothed with a species of willow, tiger and sarpat grass, &c., and are the favorite haunts of numerous birds.

In the hot season, as a rule, the lake contains no water, but presents a mass of dazzling roseate white efflorescence caused by the crystallization of the salt; here and there this monotony is relieved by patches of brine in course of evaporation. Leaving out the icebergs, and adding the fact of the thermometer being well over 130° in the sun's rays, and a fairly respectable hot west wind blowing, its appearance always reminds me of the pictures in Dr. Hay's "Open Polar Seas."

In the rains all this is changed, and the scene of utter desolation is transformed into one of great beauty. The clear atmosphere lights up and tints with purple and violet the distant low-lying ranges of hills, the sandy wastes are covered with verdure, and the lake-bed is converted into a wide expanse of water 20 miles in length by about 5 in breadth. To enhance all this, there are the tiny-crested waves rippling along, and the whole surface teeming with bird-life.

Dense masses of flamingoes are to be seen everywhere swimming or wading in the lake-bed, flying overhead, bearing "the rich hues of all glorious things," or stalking sedately along the edge in search of food. This latter process is a wonderful sight. Long lines of big and little birds, of all shades of plumage, from the gorgeous rose-colored adult to the dingy brown-

and-white young, march along, and invariably here from west to east, all wagging their down-bent heads in search of the animalcules with which the brackish water abounds. If "Alice in Wonderland" after her game of croquet with the flamingo for a mallet could have seen such a sight, she would have been sorely puzzled to account for the gigantic game which was apparently going on amongst the mallets on their own account.

A peculiar form of animalcule, about half an inch in length, is the only form of animal life which has yet been observed in the lake. These die off as the brine approaches saturation, and their dying off was formerly looked for by the practical salt-makers as a sign that salt would soon form. Before dying off, they deposit immense layers of eggs, in some places over an inch in thickness, and these are hatched at the commencement of the annual rains.

The length of time during which birds frequent the lake much depends on the depth of water and the heat required for its evaporation. When the animalcules disappear, many of the swimmers and waders go off or frequent, for a time, the fresh or brackish ponds in the neighbourhood; still many flamingoes remain, but what they manage to subsist on up till March or the middle of April—when the lake contains only a concentrated solution of brine, or masses of salt—I am quite unable to say.

Immediately after such rainfalls as I have above referred to, the specific gravity of the lake-brine is slightly less or just equal to that of sea-water, *viz.*, 1.03, and this goes on increasing in density until it reaches the specific gravity of a saturated solution of salt, *viz.*, 1.2046, about the end of February.

When the brine has reached a specific gravity of 1.08, a portion of it is cut off from the main body by low walls of mud and grass, and from these enclosures our salt supply is obtained. About the middle of March the salt extraction commences and continues until the rains set in. The salt forms, in a crust over two inches thick, on the fetid lake mud, which is about a foot in depth. The laborers place their open hands between the layer of salt and the mud, and toss the salt into small heaps, and this is carried to the stores which are situated above the high-water level. There is generally a good deal of moisture in the crust, and the instant it falls from the laborers' hands, each crystal becomes detached, and shows the truncated pyramidal form which is so peculiar to the Sambhur Salt.

This work has to be done in the early morning, as the salt and the mud become so hot about 8 A. M. as to be quite unbearable.

A walk barefoot through one of these salt fields is somewhat novel and exciting; I have tried snow shoes, long boots, and long stockings, but have found none of them equal to the bare

skin. When you have taken the first few steps in the soft warm mud, the feeling is pleasant, but when you come to place your feet on the sharp-pointed crystals and feel them pricking and scratching as you go down in some very soft place over the knees, and experience the sensation of withdrawing each leg carefully, the crystals scratching even worse with the upward pull, and the brine causing the fresh cuts to smart all the while, you cannot avoid thinking that a mile of it would be a very fair penance even for an extraordinary sin. Any pilgrim with unboiled peas in his shoes might handicap you to any extent and win without an effort. The cutting of the crystals and the continued irritation of the brine produce ulcers on the legs of the laborers, which, if not properly attended to, often lay them up for months.

The average out-turn of salt from the Lake at Sambhur and Nawa Goodha is about 1,400,000* maunds, or 51,429 tons. At Sambhur alone the average out-turn for the last 17 years was 690,000 maunds. The greatest out-turn during the above period, *viz.*, 1,360,000 maunds, was in 1869, and was due to the scant rainfall of 1868 and the abundant supply of labor which the famine forced to the works; while in 1863 the least out-turn, *viz.*, 1,504 maunds, was due to the excessive rainfall of the previous year, which raised the lake so high that it even flooded some of the lower parts of the town.

The supply of salt seems inexhaustible, and in a favorable season, with sufficient labor to construct the necessary works and collect the salt, double, or treble the quantity we now obtain could be collected.

The salt is of three colors, *viz.*, blue, white, and red. The blue color is due to the lake silt being enclosed within the crystals or covering them, while the red color is due to some form of microscopic animal or vegetable matter, which is abundantly propagated when the sun's rays are most intense. As people do not care for this red salt, it is seldom collected. New salt is greatly in demand, and the uniform size of the crystals, as well as the shade of blue or white which they possess, regulate the selling price. The price varies from 8 annas to Re. 1-1 per maund, but the average price obtained is about 10.75 annas per maund.

The carriage required for exporting the year's sales amounted to 300,000 bullocks, 66,000 camels, 18,000 carts, and 5,000 asses.

So far as I am aware, no practical geologist has as yet examined the lake, but the general belief is that the salt has been washed

* A maund is about 82 lbs. avoirdupois.

from the surrounding Permian rocks and carried by the extensive surface drainage into the lake.

The Sambhur Lake has a legend to account for the formation of the salt, and as this tradition has only appeared officially, it may not be out of place to give a brief sketch of it here.

On a promontory near the middle of the lake stands a temple dedicated to Sumbra or Sacumbree Devee, the tutelary goddess of the Chouhan Rajputs. In this temple about the year 608 Sumvat, or about 500 A. D., lived a religious ascetic, who was so absorbed in the contemplation of God, that he could not look for his food like an ordinary mortal, so it had to be supplied in an extraordinary fashion, and every day a cow came and milked itself into a lotah which stood by his side. One day Manik Rai, the cowherd in charge, saw this wonderful sight, and when the holy man took an amulet from his mouth and laid it on his carpet to enable him to drink the milk thus provided by the gods, he (Manik Rai) took it up and put it into his mouth, and such was the power of this charm that in the space of a moment he was enabled in spirit to visit all the holy shrines of India.

Having experienced its power, he replaced it, and the fakir was so pleased with his honesty that he directed him to go to the goddess Devee, who would be kind to him.

He accordingly went, and the goddess created a horse which she told him to mount and ride onwards without looking back ; he did so, and got some distance, when his pugree having caught in the branch of a tree, he did look back, so the horse stopped, and as it would go no further, he returned to his home and told his adventure. Next morning the people of the neighbourhood were astounded at seeing that the dense forest through which Manik Rai had ridden had disappeared, and in its place was a shining plain of gold and silver. There was a council held, and the unanimous opinion of the grey beards was, that this gift would convert the scene of peace into one of turmoil, so Manik Rai was despatched to the goddess with a request that she would retract her gift. The goddess however would not consent to this, but she transformed the plain of gold and silver into a plain of salt, which the natives looked upon as kutchha chandi or chloride of silver.

As the above legend is of salt, I suppose it may be taken, *cum grano*, or with several, still let no one read

“ with a disdainful smile
The short but simple annals of the poor.”

Strange as it may seem in the nineteenth century, this legend to the minds of the ignorant inhabitants of these parts met with

an apparently wonderful verification when the British Government assumed charge of the lake. Our chemical analyst wishing to obtain some pure silver, converted some rupees into chloride of silver. This was mixed with some pounded borax to act as a flux, and I made the white mass over to a village goldsmith with instructions to heat it as much as ever he could. When the fire had reached a sufficient heat, the goldsmith and the onlookers were dumbfounded at seeing a mass of molten silver in the crucible, and from the nature of the legend the news spread like wild-fire that the British had discovered a method of reconverting the salt into the original gift of the goddess.

As regards the physical features of the surrounding neighbourhood, little requires to be said. Cultivation is everywhere sparse, and the extensive sand plains contain few trees, but here and there they are covered with low scrub jungle. The trees generally met with are *Acacia arabica*, *A. leucophlæa*, *A. speciosa*, *Azadirachta indica*, *Tamarix orientalis*, *Cordia myra* and *Hamiltonia suaveolens*, while close to villages which are few and far between, a few *Ficus religiosa* and *indica* with some straggling specimens of *Phoenix sylvestris* occur. On the sand dunes a small species of acacia, *A. Jacquemonti*, is very common, and on the plains the following are a few of the commonest plants, viz., *Saccharum sara*, *Calotropis Hamiltoni* and *gigantea*, *Alhagi maurorum*, *Capparis spinosa*, *Calligonum polizonoides*, *Crotolaria burhia*, *Zizyphus nummularia*, and *Edwardsia mollis*. Everywhere the jerboa-rat, *Gerbillus indicus*,* is so abundant that the Rajputs call it the Zamin-ka-raja, or king of the soil. Ponds or jheels are of very rare occurrence, and these are generally dried up completely by the end of April or middle of May. Some of the low hill ranges are all but destitute of vegetation, whilst others are densely covered with *Euphorbia Royleana*, *Cactus indicus*, *Lagerstræmia parviflora* (dhan), and a small tree with re-curved thorns called *khiri*, which considerably impedes rapid progress. In this cover the Indian wild boar is very common, while small herds of the Sambhur (*Rusa Aristotelis*) and the Nilghau (*Portax pictus*) are sparingly met with. Wolves, hyænas, and very rarely a tiger or leopard are found, but as these are all enemies to cattle, they are soon shot or trapped by the thakoors.

On the eastern side of some of these hills are vast deposits of sand thrown over by the prevailing west winds, but these are all but destitute of vegetation, as the surface soil is scattered about by every storm. In one of those hill ranges, about thirty miles west from Sambhur, are situated the marble quarries of Mokrana, which supplied most of the white marble for the

* ? *G. erythrourus* ? ED., STRAY FEATHERS.

Taj and other buildings in Agra. The quarries are very extensive, and are still worked to supply the demand in Agra. There is also a brisk local trade in the manufacture of Hindu gods, and dishes of Indian pattern, and it is very interesting to see whole families, with children seven or eight years of age, turning out vessels of the most elegant designs with the rudest tools. The walls of the houses are chiefly built of marble chips, and the town presents a weird appearance when seen from a distance, but the most curious thing which I observed during my visit was a group of boys winnowing the sandy soil to obtain pure grains of silica for polishing the marble, and the result of a day's work for each was only about six pounds in weight.

I now append a list of the birds which I have observed at the lake and in its neighbourhood.

The accompanying sketch map shows the outline of the lake and the position of the places referred to.

The numbers* given are those used in Dr. Jerdon's *Birds of India* and Mr. Hume's *Catalogue*.

1.—Vultur monachus, Lin.

Met with in the cold weather.

2.—Vultur calvus, Scop.

Common. In March I saw this bird sitting on its nest, which was in the face of a rock in the hills near the town of Nawa.

3 bis.—Gyps fulvescens, Hume.

Common.

4.—Gyps Indicus, Scop.

Very common. This species breeds on the Taragurh Hill near Ajmere, about 50 miles from Sambhur, from December to February; *vide* page 21 of Mr. Hume's "Rough Notes."

5.—Gyps Bengalensis, Gmel.

Very common. The great number of camels and bullocks which die here attract these birds in great numbers.

6.—Neophron ginginianus, Daud.

This species, in every stage of plumage, is very common all round the lake. I have taken the nests from the walls of the Sambhur Fort, from the tops of temples, and from peepul trees. It breeds here during March.

8.—Falco peregrinus, L.

All through the cold weather, and until about the end of March, a few pairs of this species are to be found frequenting

* Mr. Hume has kindly revised the nomenclature and identified all doubtful birds.

the lake bed. They sit on the stakes which are required to form a low retaining wall to separate a portion of the lake water for the formation of salt, and from these perches they pounce on the numerous waders which feed along this wall. They are very difficult to get near, and I have often followed them up for miles through the slush of the lake without being able to risk a shot at them.

11.—*Falco jugger*, Gray.

The jugger in all phases of plumage is very common about this lake. Many an old bird have I taken a long pot shot at, in hopes of its turning out to be a bhyree (*F. perigrinus*) on closer examination. It breeds here during February. On the 2nd February I saw a nest high up on a peepul tree, all but finished.

16.—*Chiquera typus*, Bp.

Not common. I have only seen a few pairs of this bird about the lake.

17.—*Tinnunculus alaudarius*, Gmel.

Of this species, both the pale and dark varieties are very common during the cold season.

23.—*Micronisus badius*, Gmel.

Not common, but I have obtained a few good specimens of the adult and young.

24.—*Accipiter nisus*, L.

This bird is rare. I have only seen it once or twice at the lake.

25.—*Accipiter virgatus*, Tem.

Very rare. I have obtained only two specimens of the young of this bird.

29.—*Aquila fulvescens*, Gray.

The tawny eagle is very common. During the cold weather I have observed its nests in large babool and keggera trees.

42.—*Halæetus Macei*, Cuv.

Now and again I have seen this species perching on the stakes in the lake bed. It seems to feed on the small waders, which are so plentiful.

48.—*Poliornis teesa*, Frankl.

The white-eyed buzzard is pretty common here. I took a nest with two eggs on the 29th April 1870, but they must lay much earlier than this, as I saw a pair *in coitu* on the top of one of the salt heaps on the 26th September, 1870.

51.—Circus Swainsoni, Smith.

The pale harrier is very common all round the lake during the cold weather.

54.—Circus æruginosus, L.

Young birds of this species are very common during the cold season. I saw one of these birds swoop at a myna, *A. tristis*, and carry it off under a madar bush. During some of my marches I have observed a fair number of adult birds.

56.—Milvus govinda, Sykes.

This kite is very common. I have taken its eggs from mango and peepul trees during March and April.

57.—Pernis cristata, Cuv.

This species is very rare. I have only noticed it on two occasions about the lake.

59.—Elanus melanopterus, Daud.

Not common. I found it breeding near to Sambhur. For a description of the eggs and nest, *vide* page 23 ante of "Stray Feathers."

60.—Strix indica, Blyth.

Very rare. I have never shot this bird here, but a bird-catcher brought me two live birds which he caught in the hills near to Mata Pahar.

65.—Bulaca ocellata, Less.

Very rare. I have only met with the mottled wood-owl twice during my residence here.

68.—Otus brachyotus, Gmel.

The short-eared owl is not very common; still, when beating for game in the long grass or scrub jungle, one or two are sure to be flushed. One specimen I have is very ferruginous on the breast and abdomen.

70.—Bubo coromanda, Lath.

Not common, but a pair are generally to be found in some of the topes of trees.

76.—Athene brama, Tem.

This bird is very common. A pair have their nest in the thatch of my house.

On one or two occasions I have shot one of the pair, and found a mate occupying its place within the next two or three days.

Young birds have not the spotting above, and the breast has longitudinal dashes of faint dusky.

82.—*Hirundo rustica*, *L.*

The common swallow is very plentiful during the cold weather.

	Length.	Expanse.	Wing.	Tail from vent.	Tarsus.	Bill at front.
Male ...	7.0	13.6	4.7	3.7	0.4	0.3
Female ...	6.8	13.6	4.7	3.5	0.4	0.3

84.—*Hirundo filifera*, *Steph.*

Not common, but a few birds are always to be seen in the mornings, working over the fields. I obtained a nest on the 13th July. It contained two eggs.

85.—*Hirundo erythropygia*, *Sykes.*

This species is not very common. It breeds here.

86.—*Hirundo fluvicola*, *Jerdon.*

Very common about a fresh-water pond to the west of Sambhur.

98.—*Cotile sinensis*, *Gray.*

The little bank martin is very common about this. I obtained a nest on the 15th April with two very hard-set eggs. The nest was found in a hole in a bank, and was a compactly built cup-shaped structure: outer diameter, 4 inches; egg receptacle, a little over 2 inches. The nest was made of grass and fibres well rounded together; the outer portion of the nest was of a coarser quality than the lining, but made of the same material; depth of egg cavity, $\frac{3}{4}$ inch.

90.—*Ptionoprogne concolor*, *Sykes.*

Not common. I have only obtained this species near Mata Pahar and the extreme western portion of the lake. Mr. Hume, during one of his visits to Mata Pahar, found a nest with three eggs.

100.—*Cypselus affinis*, *J. E. Gray.*

This swift is very common, and builds in the old tombs and mosques. I found a *congeries* of about thirty nests in a small tomb, and these were all closely packed together; some had openings at the sides, while others had tubular-shaped necks, about 2 inches long, projecting from the side of the nest. The nests were composed of pieces of straw, fine twigs, cobwebs, and fluffy feathers, all agglutinated together, with here and there some bright-colored feather of a parrot or roller stuck carelessly on the outside. A nest which I detached measured from

opening to end, $7\frac{1}{2}$ inches, in breadth it was 4 inches, and the opening was 2 inches in diameter. The nest was oval in form, coarse, and lumpy in texture externally, but comparatively smooth inside. The egg cavity had a lining of fine feathers, and the entrance was lined with fluffy feathers. Nearly every nest contained a bird, and in some cases I found two birds.

112.—*Caprimulgus asiaticus*, Lath.

Not common. I had the eggs of what I suppose to belong to this bird, from Dr. Jerdon's description, sent to me from Koochamun at the end of April. In ground color and marking they much resemble the eggs of *Pterocles fuscatus*, but are much smaller.

114.—*Caprimulgus monticolus*, Frankl.

Not common. Generally found in the low-lying hills towards Nawa.

117.—*Merops viridis*, L.

This species is very common. A young bird in my collection has the central tail feathers shorter than the others; above, the color is pale green, a shade darker on the head, with no tinge of golden about the feathers; the outer primary coverts are tipped white. Beneath, from the throat to the vent, the color is pale fawn mixed with green; the collar is faintly marked by a narrow line, and dots of green; under tail covers, pale blue. This bird commences to build here towards the end of March. Although, as a rule, it prefers to build in a bank, I have taken its nest on level ground. The nest is generally about three feet deep, but I have seen them nearly six feet, and the egg cavity is a long oval with the major axis about 5 or 6 inches; it is without any lining; the angle of the decline from the opening to the nest is about 30° . In some nests which I have dug out, a piece of kunkur or stone has caused the bird to diverge at right angles from the straight line, and then follow the same angle until a sufficient depth has been reached. I have found as many as seven eggs in one nest, although four or five is the normal number, and I have repeatedly found the young birds in the most various stages of plumage, *i. e.*, one all but fledged, and the youngest covered with down. On several occasions I have found frogs occupying the egg cavity of this bird.

120.—*Merops ægyptius*, Forsk.

This bird is rarely seen about Sambhur, but about the tree and scrub jungle at Mata Pahar and the Marot hills it is very

common. In the Marot hills the natives showed me the holes in which it breeds about the beginning of the rains. The females are, as a rule, a trifle smaller than the males, but the sexes vary very little indeed in dimensions. Four males and three females, measured in the flesh, varied in length from 12·1 to 12·2; expanse, 17·2 to 17·6; wing, 6 to 6·1; tarsus, 0·4 to 0·5; bill at front, 1·8 to 1·9.

123.—*Coracias indicus*, *L.*

Very common. I have taken its eggs during March, April, and May. On the 24th April I saw a pair making love near the Sambhur Fort, and on the 1st May I obtained the eggs of the same birds from a cavity in a neem tree; one of the eggs was a little set.

129.—*Halcyon smyrnensis*, *L.*

The white-breasted kingfisher is very common, and breeds in the banks of the open wells from March till June. On the 15th April I took a nest four feet below the ground level, and three feet deep, in which I found two fresh eggs. On the 13th June I took another nest in which I found five eggs, all hard-set; the nest was about 18 inches deep. On the 27th June I took a nest with four fresh eggs. The unblown eggs were pinkish with whitish streaks. In no case had the egg cavity any lining.

134.—*Alcedo bengalensis*, *Gm.*

Very rare. I have only observed it once here.

136.—*Ceryle rudis*, *L.*

Very rare. I have only obtained two specimens of this bird here. Both were males and had the black bands right across the breast.

148.—*Palæonris torquatus*, *Bodd.*

This species is very common. I have, on several occasions, taken the eggs from holes in neem trees during March. During courtship the manner in which the male persists in kissing the female, and between each kiss keeps letting go one foot, generally the right, from the branch on which he is sitting so as to raise his body up and down, is highly amusing.

149.—*Palæonris purpureus*, *Müll.*

This species is common about Sambhur and the hills towards the village of Marot. It breeds here, but I have never taken its eggs.

160.—*Picus mahrattensis*, Latham.

This is the only woodpecker which I have seen in the immediate neighbourhood of the lake. Although not common, it is occasionally seen working over the kheggera and babool trees.

I lately shot two males and a female which were working over a babool tree. They were all young birds, and the crimson tippings on the occiput of the males were just appearing. This was on the 10th of May.

167.—*Chrysocolaptes festivus*, Bodd.

I obtained only one specimen of this from the Koochamun jungles. Male, length, 12·2; expanse, 19·5; wing, 6; tail from vent, 3·4; bill at front, 2; tarsus, 1.

180.—*Brachypternus aurantius*, L.

I have only seen one bird of this species in the Koochamun jungles, and as I was after large game, I could not afford to shoot it.

188.—*Yunx torquilla*, L.

The common wryneck is very rare; I have shot it on two occasions in the scrub jungle near the foot of the hills, and once close to Sambhur.

197.—*Xantholæma hæmacephala*, Müll.

The crimson-throated barbet is very common about all the gardens here. It breeds about April and May. The young birds have the yellow on the throat, and about the eyes very pale; there is no red on the breast, and the whole of the head and neck is a dull green.

199.—*Cuculus canorus*, L.

Very rare. I have only observed this species twice here. Obtained in May.

205.—*Hierococcyx varius*, Vahl.

Very rare. Seen in July.

212.—*Coccytes jacobinus*, Bodd.

Very rare. Obtained in July.

214.—*Eudynamis horonata*, L.

Rare. I possess a young male with most of the feathers glossy green, but some of the primaries and secondaries are light-brown, mottled with white, and one of the tail feathers is

brown with white bands. About the vent there are a number of white feathers. The koel has visited Sambhur during my residence only once or twice, and that during the rains.

217.—*Centropus rufipennis*, Illiger.

Very rare. I have never seen the common coucal anywhere about this, but last December a specimen was shot in my garden.

Female, length, 21·3; expanse 23·3; wing, 8; tail from vent, 12·4; tarsus, 2·1; bill at front, along curve, 1·7; irides, red.

220.—*Taccocua sirkee*, Gray.

Very rare. I have only once seen a pair in a patch of jungle near Marot. Both were feeding on the ground when I shot them.

Male, length, 17·5; wing, 6·5; tarsus, 1·7; tail from vent, 10·4; bill at front, along curve, 1·3.

Female, length, 17·25; expanse, 19; wing, 6·4; tail, 10·5; tarsus 1·5; bill at front, along curve, 1·5; bill, blood red; the tip of the upper and lower mandible, horny white. The whole of the tail feathers obsoletely barred.

234.—*Arachnechthra asiatica*, L.

The purple honey-sucker is very common about Sambhur; it breeds during the month of April and up to June. On the morning of the 18th April, I saw a female apparently in a great state of excitement over a piece of cobweb in a tree, and I succeeded in lining it like a bee, until I found the beginning of a new nest on a babool tree, about 15 feet from the ground. On the 19th it had the upper portion of the nest well formed, on the 20th the nest was well blocked out, but had no inner lining. From the 21st to the 24th the bird was occupied in ornamenting the outside of the nest with all sorts of stray feathers and other odds and ends.

During these days it also filled in the inner lining. It is curious how fond these birds are of tacking on pieces of paper, and here and there a bright-colored feather from a parrot, or a roller on the outside of their nests. When in Agra a bird of this species built a nest on a loose piece of thatch cord in my verandah, and on the side of the nest, stuck on like a signboard, was a piece of a torn up letter with "My dear Adam" on it.

On the 26th I found the bird sitting on the nest, and I presume it had eggs, but I did not care to disturb it, and on the 27th for the first time I saw the male bird near the nest. All through the time of construction, so far as my observation went, he never assisted the female in the slightest degree. Now he seemed exceedingly happy, fluttered every now and then about the nest, and after each careful inspection he was so seemingly

pleased with the handiwork of his mate, that he perched on an adjoining branch and poured forth a joyous strain, flapping his wings, and making his axillary feathers rotate in the most extraordinary manner. On the 13th of May the young were hatched, and I never once observed the male coming near the nest to feed them; about the 24th the birds were well fledged. It does seem strange that the male of this species should not take any part in the construction of the nest, the hatching or the rearing of the young, but I presume that the reason of this is that his conspicuous plumage about the nest would attract the attention of birds that might destroy it.

When in Oudh I have seen the village boys with tame honey-suckers which they carried about on their hands, having a horse-hair attached to the bird's leg. The birds were fed with sugar and water, which was kept in the hollow of a slender reed, and they seemed very much pleased when they were allowed to sip it.

246.—*Salpornis spilonota*, *Frankl.*

I have lately had two specimens of this rare bird shot for me in the jungle near Koochamun. This is the second time that I have obtained it. In 1868, when at the village of the Moteepur—in the Baraitch district—on the outskirts of the forest, I saw a small party of six of these birds fly into a tree, and I then obtained two.

Male, length of dried skin, 5.75; wing, 3.5; tail, from vent, 1.7; bill at front, 1.0; tarsus, 0.6.

254.—*Upupa epops*, *L.*

The European hoopoe is very common about this lake during the cold weather, but it disappears entirely during the breeding season, and returns about the end of August. Six specimens, with bills measuring 2.2, have the amount of white on the crest feathers varying very much.

255.—*Upupa nigripennis*, *Gould.*

This species is not common. I have only obtained one female, and there is hardly a trace of white on its crest.

Length, 11.1; expanse, 16.9; wing 5.5; tail from vent, 3.8; tarsus, 0.8; bill at front, 1.9; mid toe and claw, 0.8; irides, dark brown.

256.—*Collyrio lahtora*, *Sykes.*

The pallid shrike is very common and breeds here from March till July. I have on several occasions witnessed this bird attack and capture young birds, and I once rescued a young *Temenuchus pagodarum* which was in a fair way of being killed.

257.—*Collyrio erythronotus*, Vigors.

This shrike is not very plentiful. It breeds here, but I have never taken its eggs.

260.—*Collyrio vittatus*, Dum.

The bay-backed shrike is very common about Sambhur. It breeds here, but I have never taken its eggs. On the 1st August 1872, I saw numbers of nests and fledglings of this bird in the Marot jungle.

262.—*Lanius arenarius*, Blyth.

This shrike is frequently met with about the sandy plains. I have an adult male showing the white wing spot on the fourth, fifth, and sixth primaries only.

265.—*Tephrodornis pondiceriana*, Gmel.

Not very common. The young birds are pale rufescent brown above, with pale reddish-white spots and streaks about the head, and spots as tippings to the feathers of the back; the tertiaries have one or two bars near the tips, and along the edge of the feathers, dark brown. It breeds here, as I saw one carrying a twig in its bill, but I failed to discover the nest.

268.—*Volvocivora Sykesii*, Strickl.

Two specimens of the young of this species I obtained in June 1871, and I have never seen any others since. The centre tail feathers are dark blackish grey. In the male the head, neck, and breast are nearly all black, and on the breast (below the black) and flanks are numerous black crescentic markings. In the female some of the head feathers are black, and from the throat to the middle of the abdomen, and on the upper tail coverts, are blackish wavy lines.

273.—*Pericrocotus brevirostris*, Vigors.

Small parties of this minivet visit Sambhur during the cold weather.

276.—*Pericrocotus peregrinus*, L.

The small minivet is very common during the whole year. It seems to prefer patches of jungle trees, to trees near to villages. Tarsus, 0.6. Jerdon gives this as 0.9.

227.—*Pericrocotus erythropygius*, Jerdon.

I have on two or three occasions shot this bird in the tree jungles near to Marot and Koochamun, but I have never obtained it at Sambhur. Irides, dark brown.

278.—*Buchanga albirictus*, *Hodgs.*

Very common. The king-crow breeds here in June and July. The eggs vary much with regard to coloring; some are pure white without spots, some have dark-brown spots on the white ground, whilst others have a pale rufous ground darker at the broader end, with spots of deep rust color and lilac. Irides, deep lake-red.

288.—*Tchitrea paradisi*, *L.*

Not very common. I possess a male, in the chestnut plumage, with all the outer webs of the wing feathers white, some with a chestnut edging. The tail feathers have also a good deal of white mingled with the chestnut.

292.—*Leucocirca aureola*, *Vieillot.*

Very rare about Sambhur, but I have seen a few pairs about Nawa and Marot. In some specimens the extent of white on the outer tail feathers is very considerable.

295.—*Cryptolopha cinereocapilla*, *Vieillot.*

This fly-catcher is very rare here; I have only obtained one specimen, shot 15th December 1870.

297 bis.—*Musicapa grisola*, *L.*

Only one specimen of this bird has been obtained.

323 bis.—*Erythrostera parva*, *Bechst.*

This species is somewhat rare; I have specimens shot in November, December, and the end of March, and all have the bright rufous throat patch.

351.—*Petrocossyphus cyanus*, *L.*, or, if distinct, *P.*

Pandoo, *Sykes.*

Very rare. I have only met with it on two occasions at Sambhur.

353.—*Petrophila cinclorhynchus*, *Vigors.*

Very rare. I shot a young female 18th September 1870.

355.—*Geocichla citrina*, *Lath.*

Very rare. I have only once seen this bird here. I shot a female as she was hunting for insects in a large burgot tree on the 10th March.

356.—*Geocichla unicolor*, *Tickell.*

Very rare. I have only obtained one specimen in this neighbourhood.

385.—Pyctoris sinensis, Gmel.

I have obtained specimens of this bird from the hills near Koochamun, but during my numerous excursions in the neighbourhood I have never myself seen it.

436.—Malacocircus Malcomi, Sykes.

Very common. This species commences to breed about the end of March.

438.—Chatarrhæa caudata, Dum.

This bush-babbler is very common about the lake. I have noted it breeding from the beginning of March till the beginning of July. The first nest which I discovered here was deserted by the birds, but it was at once taken possession of by a pair of munias, *Munia malabarica*, who built a very neat roof over it. Although this species generally prefers building in the hedges of prickly pear, I have taken the nests in orange trees, the karounda, the babool, &c.

459.—Otocompsa leucotis, Gould.

This species is seldom seen about Sambhur, but towards Nawa and Mata Pahar it is very abundant. It seems to prefer low scrub jungle. I am told that it breeds here, but I have never seen its nest. Irides, dark brown.

452.—Molpastes* chrysorrhoides, Lafr.

This species is very common. It breeds during June and July.

468.—Ægitheria (Iora) tiphia, L.

This species is very rare. I have only shot it on two occasions here. I do not know whether *zeylonica*, Gm., and *tiphia*, L., are really distinct, but both my specimens are of the *tiphia* type. From the hills near Koochamun, I have obtained a male of the *zeylonica* type.

470.—Oriolus kundoo, Sykes.

The Indian oriole is common here. During the cold season it keeps very quiet, but as the breeding season approaches, the birds are incessantly calling to each other. It breeds in June and July, and generally builds on the *neem*, *sisir*, or *sisoo*. It selects a fork on a slender branch difficult of access, and on this,

* I propose the subgeneric name *Molpastes* for the small group of bulbuls comprising *chrysorrhoides*, Lafr. (= *pusillus*, Bly.) type; *pygmæus*, Hodgs, *crocorrhous*, Strickland; and, if distinct, *intermedius*, Hay; and *nigropileus*, Jerd.—ED., STRAY FEATHERS.

somewhat in the shape of an equilateral triangle, the bird first binds very securely pieces of tow, twine, or longish strips of cloth, fastening them round the twigs and leaving a depression, into which is placed a cup-shaped structure composed of fine grass or twigs firmly rounded together. There is no lining in the nest. The egg cavity is 3 inches in diameter and 2 inches deep. I have usually found two or three eggs in a nest. The eggs are white with largish sepia-brown spots at the broad end.

475.—Copsychus saularis, L.

This bird is not common, but pairs are now and then seen about gardens and tops of trees. A pair nested in my garden, but I could never succeed in finding the nest.

480.—Thamnobia cambaiensis, Latham.

The Indian robin is very plentiful here, and breeds from March to June. A pair which built in my verandah in April had two eggs in the same nest on the 8th May, or about ten days after the first brood left the nest.

The nest is made in holes in trees, stone or mud walls, the thatch of houses, or in prickly pear bushes. Sometimes it is very carelessly made; at other times the bird bestows a good deal of labor on it. When carelessly made, a few tags of sheep's wool and some human hair rounded into a cup-shape suffice, but when carefully made, it is constructed of fibres, grass, and grass roots, all firmly matted together, and the egg cavity is lined with different kinds of hair. The outer diameter of the nest measures 4 inches; the inner, $2\frac{1}{4}$ inches, with a depth of $1\frac{1}{4}$ inch. In each of the numerous nests which I have taken, there were either one or two pieces of snake's skin or a few pieces of mica, which is rather common about the roads when the mohurum tazzeas are being carried about. Two seem to be the normal number of the eggs, but I have sometimes found three; they are of a pale-greenish color, some with spots, and others with only freckles of various shades of reddish-brown: one egg I possess has a few very fine spots, while at the thick end there is a lovely zone of lilac and reddish-brown.

481.—Pratincola caprata, L.

This bird is not very plentiful here. I once saw a nest, taken close to Sambhur, which contained four eggs. The young birds are dark-brown with rufous lines on the head; the back feathers are tipped rufous, with a dark-brown edging; the tertiaries are edged bright-rufous, and in the young male the wing spot is also this color. A young male in a more advanced stage of

plumage is a dark-brown, with the head and throat somewhat darker colored; wing spot, white.

I found a nest of this bird on the 23rd June 1873. The nest was in a hole in the bank of an open well. The hole appeared to have been made in the loose sand by the bird and measured about 3·5 in diameter. The outer lining of the nest consisted of a few pieces of coarse grass, while in the egg cavity there were a few pieces of fine roots carelessly placed together and not rounded. The nest contained three eggs of a pale greenish color, with a zone of rust-colored spots at the broad end, and a few spots and freckles of the same color on the body of the egg. Length, ·62; breadth, 0·5.

483.—*Pratincola rubicola*, L. *andersoni*

This bird is not very common.

488.—*Dromolæa opistholeuca*, Strickl.

This species is not common. The black on the middle tail feathers measures 1·6, and not, as Jerdon mentions, about half an inch.

489.—*Dromolæa picata*, Blyth.

Common during the cold weather. Mr. Hume considers this species and *Saxicola capistrata* (490) to be different stages of the same bird. I cannot pretend to offer any opinion on the subject, for *capistrata* is not common here. I have, however, obtained five specimens of it, with the head varying in color from white to dark-brown black. Irides, dark-brown.

491.—*Saxicola isabellina*, Rüppell.

Very common on the sandy plains during the cold weather.

492.—*Saxicola deserti*, Rüppell.

This species is more plentiful, if anything, than the preceding.

494.—*Cercomela fusca*, Blyth.

The brown rock-chat is very common, and is generally seen in pairs about old buildings, near villages, or the loose stony portions of the hills. On the 23rd March I found a nest in the Sambhur Fort in a wall of an inner room. It was about 5 feet from the ground. It was cup-shaped, the outside measuring $4\frac{1}{2}$ inches in diameter, and the egg receptacle about $2\frac{1}{2}$. The nest was composed of fine grass, loosely rounded together, and had for a lining a layer of goat's hair worked carelessly round into the shape of the nest. The eggs are blue with pale, or sometimes dark, reddish-brown spots near the thick end.

To show how fearless this little bird is, I may mention that in April last one of them built in a hole in a bath-room wall, and did not appear to be frightened by the people going out and in. About three weeks after, the young had left the nest, the birds laid three eggs in the same nest, and these I took on 10th April 1873.

497.—*Ruticilla rufiventris*, Vieill.

This species is not very common. From the series of birds now before me, it would seem that the grey of the head and back becomes deep black. In a male, shot in September, the feathers of the head and back are deep black, with only a few grey tippings to some of the feathers. The female is pale brown above, with the rump and tail feathers like the male, but paler. There is also a pale rufous frontal band.

514.—*Cyanecula cærulecula*, Pall.

The Indian blue-throat is common about this. It frequents the long grass about the open wells and the fields adjoining the wells. I feel certain that it breeds here, but I have never obtained a nest.

515.—*Calamodyta brunnescens*, Jerdon.

I have three specimens of this reed warbler. Male, shot 11th April 1873. Length, 8·2; expanse, 11·1; wing, 3·6; tail from vent, 3·1; tarsus, 1·3; bill at front, 1·1. Irides, greyish brown. The last I shot was in the middle of May. It was a female, and the eggs in the ovary were very minute.

516.—*Acrocephalus dumetorum*, Blyth.

The lesser reed warbler is not often met with here. I have seen it once or twice hunting for insects amongst the reeds in a tank close to my house. After each hunt it perched well up on a reed and uttered its peculiar loud call.

Male, length, 5·6; expanse, 7·8; tail from vent, 2·3.

Female, length, 5·3; expanse, 7·3; tail from vent, 2; bill at front, 0·7; wing, 2·3; tarsus, 0·9.

530.—*Orthotomus longicaudus*, Gmel.

The tailor bird is very common about this. It breeds from June to August. Male, length, 7·6; wing, 2; tail from vent, 4·3; bill at front, 0·6; tarsus, 0·8.

538.—*Prinia Hodgsoni*, Blyth.

The Malabar wren warbler appears to be pretty common in the hills towards Koochamun. I have never shot it, but a batch

of forty birds lately received from my bird stuffer contained six specimens.

Tail feathers obsoletely banded. Thigh coverts, rufous.

539.—*Cisticola schoenicola*, Bonap.

Not common,

543 bis.—*Drymoipus terricolor*, Hume.*

Not very common. This species breeds in July.

544.—*Drymoipus longicaudatus*, Tickell.

Common; all the specimens I have want the narrow sub-terminal dark band mentioned by Jerdon. Irides, yellowish brown.

545 bis.—*Drymoipus insignis*, Hume.

I have obtained only one specimen of this bird. It was shot in the Koochamun jungle.

550.—*Burnesia gracilis*, Rüpp.

This is very common about the grass lands and low scrub jungle.

551.—*Franklinia Buchanani*, Blyth.

Very common. This wren warbler is always found wherever there are low bushes. It breeds just before the rains, but I have not recorded the date. I had a nest with the bird and five eggs sent to me. The eggs are pale bluish-white with reddish-brown spots and freckles all over them.

552 ter.—*Jerdonia agricolensis*, Hume.

Not very common.

554.—*Phyllopseuste tristis*, Blyth.

Very rare.

559.—*Phyllopseuste nitida*, Lath.

Very rare.

560.—*Abrornis viridana*, Blyth.

Very rare.

562.—*Phyllopseuste indica*, Jerd.

Very rare.

* This is the northern form, quite distinct from Sykes' Southern Indian *inornatus*.—ED., STRAY FEATHERS.

581.—*Sylvia Jerdoni*, Blyth.

I have only met with this species once, and then I shot one of a pair which were hunting for insects in low scrub jungle. Irides, pale greenish-yellow.

582.—*Sylvia affinis*, Blyth.

Very common during the cold season. It is generally to be found working for insects on keggera or babool trees.

589.—*Motacilla maderaspatana*, Gm.

The pied wagtail is very common about all the open wells and tanks. They build during April and May. Although I had been looking out for the nest of this bird for some time, the first I found was on the morning of the 18th April. I then noticed an adult catching a large dragon-fly, and as it did not proceed at once to devour it, I thought that it might be for its young. After flirting about for fully five minutes with the fly in its bill, it popped into a hole at the very water level of a tank near to my house and immediately re-appeared without the fly. On examining the hole, I found a nest containing three full-fledged nestlings and one addled egg. The nest was a longish oval, about seven inches in length and four in breadth; in thickness it was about two inches. It was composed of pieces of twine, cloth, fibres of plants, feathers, and a large proportion of human hair. Round the outer edge there was a rim formed, I presume, to keep the young in the nest. The egg receptacle was quite flat, and lined with a few feathers, horse-hair, wool, and fibres firmly matted together. On the 1st May, I observed another bird building, and found its nest in a hole in the bank of an open well. The nest had just been commenced; on the 3rd it was finished, and on the 7th it contained two eggs, which I took with the nest. Another bird I watched finished its nest on the 7th May, and on the 9th, 10th, 11th, and 12th it laid an egg each day. The eggs are dirty white in color, much speckled and spotted with pale-brown and dusky; at the broad end the spots are massed together, while in one egg they form a zone.

591.—*Motacilla personata*, Gould.

Common.

591 bis.—*Motacilla dukhunensis*, Sykes.

Very common during the cold weather.

592.—*Calobates boarula*, Penn.

Common.

593.—*Budytes viridis*, Scop.

Very common. This species is generally found feeding on grass lands where cattle are grazing.

593 bis.—*Budytes melanocephala*, Licht.

Whether this is merely one stage of the preceding I cannot say certainly, but I think it is. I have a pair before me, both killed in March and sexed by myself, both with the whole head and nape, lores, ear coverts, and sides of head deep black, back, olive green, whole under parts the brightest yellow. The only differences between the sexes are, first, that the male is larger. (Dimensions recorded in the flesh).

		Length.	Expanse.	Tail from vent.	Wing.
Male	...	6.8	9.9	3.0	3.1
Female	...	6.5	8.9	2.9	2.7

Secondly, that both the head and back of the female are of a somewhat lighter shade, and thirdly, that in the female the chin is white.

These birds are very common in the spring.

594.—*Budytes citreoloides*, Hodgson.

Common. This bird is generally found about the water-courses in the fields.

594 bis.—*Budytes citreola*, Pallas.

Equally common with the last.

596.—*Pipastes agilis*, Sykes.

Not very common.

597.—*Pipastes plumatus*, Müll.

Not very common.

599.—*Corydalla rufula*, Vieill.

Common.

602.—*Agrodroma campestris*, Bechst.

Not very common.

631.—*Zosterops palpebrosus*, Temm.

I have only once seen a small party of this species working for insects over a tree in my garden.

645.—*Parus cinereus*, Vieill.

Very rare. I have only once obtained it myself, and then in the Marot jungles, but several specimens were obtained for me in the Koochamun hills. Wing, 2.6; bill at front, 5.5; tarsus, .7.

646.—*Parus nuchalis*, *Jerdon*.

In one patch of jungle near to Marot I have obtained some twelve specimens of this rare bird, and quite lately I found it in another range of hills further to the west towards the marble quarries of Mokrana. It seems to be so common about the Marot jungle that I have never yet paid the jungle a visit without securing one or more specimens. At the beginning of last rains I sent some men to look for the nest, but although I obtained a female with the ovary greatly enlarged, they failed to find a nest. I again sent men about a fortnight later, and they reported that no birds were to be seen.

Jerdon's figure, in his "Illustrations of Indian Ornithology," is very good, but while Jerdon describes the bird as black, the figure shows the color as a deep glossy blue-black, and all my birds have this shade, but darker than shown in the figure. The nuchal mark is like a semi-circle in the males, smaller in the females; this mark and margins and tips of the tertials are pure white. In some specimens the white of the breast is tinged with very pale-yellow.

The central tail-feathers are obsoletely banded, and are all more or less tipped with white. In good specimens there is a very dark glossy green edging to the feathers. The mesial stripe is deep black with a shade of blue. Irides, dark-brown. In size they are very much alike.

		Length.	Expanse.	Wing.	Tail.	Tarsus.	Bill at front.
Male	...	5.2	8.6	2.7	2.1	0.7	0.45
Female	...	5.4	8.4	2.6	2.1	0.7	0.4

The call is a fine bold whew, whew, whew, whew, *whew*. It utters it rapidly with the last note high. I had noticed the call and was looking for the bird, when Mr. Ashton shot it in the act of calling. On the 25th May I obtained a male evidently breeding.

657.—*Corvus Lawrencei*, *Hume*.

This raven is pretty common during the cold weather, but pairs are seen about this throughout the year. They are very fond of attaching themselves to the camps of the numerous parties of Banjaras who visit the lake.

I obtained a nest at the end of January which contained three eggs, and a fourth was found in the parent bird. The nest was about fifteen feet from the ground in a keggera tree

(*Acacia leucophlæa*) which stood on a bare sandy waste with no other tree within a mile and a half in any direction.

663.—*Corvus impudicus*, Hodgson.

Abundant. It breeds here, and I have taken its eggs in July. During one of my morning rides I encountered a crow interviewing a very large mantis; but the mantis struck out with its forearm over the crow's eyes whenever the crow's head was too close, and I am glad to say that the crow had to beat a retreat.*

674.—*Dendrocitta rufa*, Scop.

Very rare. I have only seen this magpie three or four times in a belt of trees near to the lake-edge at Sambhur.

381.—*Sturnus vulgaris*, L.

This species is often met with in pairs, or small parties, during the cold weather.

684.—*Acridotheres tristis*, L.

Very common. In young birds the color is paler, and the feathers of the back, breast, and neck are tipped with rufescent. It builds in holes in trees. I have taken the eggs in June, but I saw one taking a feather into a hole in a neem tree on the 26th February last.

685.—*Acridotheres ginginianus*, L.

The bank myna is also very common. It breeds in June. A number of these birds generally make their nests close together in an old kutchā well.

687.—*Temenuchus pagodarum*, Gm.

Not very common. The black-headed myna breeds here, but I have never taken its eggs. During the month of June I saw a pair of these birds trying their very best to work their way into a hole in a tree which I knew contained the well-fledged young of *Xantholæma hæmacephala*, and the parent birds had great trouble in driving them off.

I have now a live bird which was taken from the nest, and he imitates king-crows, bulbuls, &c. Sitting on his perch with his head a little back, the crest feathers slightly raised, and the whole plumage as it were relaxed, he keeps up an incessant chattering during the live-long day.

690.—*Pastor roseus*, L.

During the cold weather, large flocks of the rose-colored starling, accompanied by the young in the brown phase of plumage, frequent the neighbourhood.

* ? Was it the *mantis*, or the *man*, that put the crow to flight? P. D.

The flocks come from the westward about the beginning of August. In 1872 I have noted the earliest observed on the 1st August; they stay with us till about the beginning of the hot weather, when the flocks may be seen travelling from the east to the west. I have also noted flocks returning as early as the 21st July.

694.—*Ploceus baya*, *Blyth*.

The weaver bird is very common about this. It breeds during August, and, as a rule, prefers to hang its nest on the branch of a willow or keekur tree about the open wells, but I have often found groups of nests on solitary keekur trees in the open plains, far removed from water. The quantity of mud on the sides of the nest above the egg chamber varies much.

699.—*Lonchura punctulata*, *L.* (*Munia undulata*, *apud Jerdon*.)

I have only once seen the spotted munia here, and that was during the rains. I have not obtained a specimen.

703.—*Munia malabarica*, *L.*

The plain brown munia is very common here. It builds during March, April, and May.

This bird seems to build anywhere, and I have taken its nests in old walls, about houses, and in various trees. One nest I have noted had six eggs; it was built in a babool tree about 20 feet from the ground, and just above it was a nest of a shrike, *C. lahtora*. The nest was not of the beautiful Florence-flask shape, which is so common in the North-Western Provinces.

It was round and coarsely built of fine grass loosely worked together. The lining consisted of pieces of cotton, scraps of cotton cloth, and a few feathers.

706.—*Passer indicus*, *Jardine and Selby*.

Very common. It is with great difficulty that I can keep the sparrows from building inside my house, and were it not for a fine long blow-pipe which I possess, the thatch in my verandah would be utterly destroyed by them. They know the shape of the blow-pipe as well as any old crow knows the shape of a gun.

707.—*Passer salicicola*, *Vieill*.

I found this sparrow very plentiful in the keggera jungles near to the town of Koochamun during the cold season.

711.—*Gymnoris flavicollis*, Franklin.

The yellow-throated sparrow is very common about here. When the bird is in full plumage, the bright yellow throat patch contrasts beautifully with the ash color of the breast.

716 bis.—*Fringillaria striolata*, Licht.

This species is found in the scrub jungles about the hills near to Nawa and Marot. Mr. Hume found it breeding on the Taragurh hill near Ajmere, and I have not the slightest doubt that it breeds about the hills near the lake.

716.—*Citrinella Huttoni*, Blyth.

I have obtained this bird on two or three occasions in the low range of hills close to Nawa and about Koochamun.

722.—*Euspiza luteola*, Lath.

At times I have seen large numbers of this species here. The last I saw about the 15th April 1873, and the males were in full breeding plumage.

724.—*Melophus melanicterus*, Lath.

Very rare in this immediate neighbourhood. I have only obtained two specimens, both females, at Sambhur itself, but in the Kochamun hills I have had a number of males shot for me.

738.—*Carpodacus erythrinus*, Pall.

The common rose-finch is very rare about Sambhur. I have only observed it on one or two occasions. In March I shot a fine male in summer plumage, and in September I obtained a female.

756.—*Mirafr erythroptera*, Jerd.

Common about the scrub jungles.

757.—*Mirafr cantillans*, Jerd.

Not very common.

758.—*Ammomanes phœnciura*, Franklin.

This finch-lark is very common about the fields immediately after the rains. It seems, however, at other times to prefer the stony ground at the foot of the neighbouring hills. Tarsus 0·85; Jerdon gives this as ·5.

760.—*Pyrrhulauda grisea*, Scop.

The black-bellied finch-lark is very plentiful. It breeds about here from March till August. The first nest which I

found was on the 22nd April, 1870. As I was riding along the lake edge, I saw a female with a feather in its bill, so I followed it up to its nest. The nest was nearly finished, but contained no eggs. On the 26th there were two eggs, and I think this is the normal number, but I have a record of three being found in one nest. The nest was built well out into the lake bed, on the top of a low retaining wall of a salt pan. It was a deepish cup shape, in diameter about three inches, with the egg cavity rather less than two inches across and half an inch deep. It was chiefly composed of coarse pieces of grass worked carelessly together, and here and there were pieces of cloth and twine of the same material as the salt bags are made of. Round the nest was a belt about five inches broad composed of small pieces of an incrustation of saline earth about a tenth of an inch in thickness. The pieces varied much in size, but the largest were about an inch long by half an inch thick.

This nest was comparatively safe, but it is a puzzle to me how others which I have seen on the lake edge escape being squashed by the thousands of bullocks and camels which are continually passing and re-passing.

The eggs are pale yellowish green in color and covered with very minute specks of various shades of brown.

761.—*Calandrella brachydactyla*, Leisl.

Very abundant.

761 *ter.*—*Melanocorypha torquata*, Bl.

This lark is not very common. The only specimen I have was rescued from the talons of a *bhyree* (peregrine).

765 *bis.—*Spizalauda simillima*, Hume.**

Not very common.

767.—*Alauda gulgula*, Frank.

Very abundant. Flocks of this species are found all over the plains in the cold weather.

769.—*Galerida cristata*, L.

The crested lark is very common. It breeds about April and May. On the 29th April I saw a nest all but finished in a wheat field. In young birds the head, back, and wing coverts are spotted with dusky white.

* This is the Upper Indian form, quite distinct, as I have previously pointed out, from *S. deva* of Sykes, which, by the way, may have to stand as *S. Malabarica*. Scop.—ED., STRAY FEATHERS.

772.—*Crocopus phoenicopterus*, Lath.

This species is very rare. I have obtained a single specimen which was feeding on a burgot tree.

773.—*Crocopus chlorogaster*, Blyth.

On my first arrival at Sambhur, we used to shoot these birds for the table, but lately the bird has almost disappeared. Quite recently I observed this bird feeding on a burgot tree at Nawa.

788.—*Columba intermedia*, Strick.

As the killing of the common blue pigeon is strictly prohibited all through Rajputana, this species is very abundant. The Native Governments allow a certain quantity of grain to be given to the pigeons each morning, and pay a man to feed them. Every morning at break of day flocks of pigeons may be seen hurrying into Sambhur from the surrounding villages, and when the grain is thrown out to them the fluttering and fighting of the thousands of birds is a sight well worth seeing. When the grain has been consumed, each flock starts off for its home. It seems to breed throughout the year. I have had them breeding in my verandah, but old wells seem to be their favourite nesting place.

792.—*Turtur rupicola*, Pall.

Very rare. I have only observed this bird once at Sambhur. Specimen shot 10th May 1873. Some of the feathers of the back and upper tail coverts are edged with rufous.

Jerdon does not note that the neck spot is tipped with grey.

794.—*Turtur cambayensis*, Gmel.

Very common. Some specimens have the head of a very pronounced pink color as compared with others. It breeds here, and builds in small trees, verandahs, &c.

795.—*Turtur suratensis*, Gmel.

This bird is not common about Sambhur. I have only obtained specimens during the rains.

796.—*Turtur risorius*, L.

Very common. This bird breeds here throughout the year. On one occasion I saw this bird feeding a pair of well-fledged young, and on re-visiting the nest about five days after, I found the nest with two eggs.

797.—*Turtur humilis*, Tem.

Very common. Breeds here throughout the year.

799.—*Pterocles arenarius*, Pallas.

This bird is with us in very large numbers during the cold weather. I have repeatedly watched it during the early morning, and have never seen it drink till about nine o'clock. The bird-catchers here catch this bird by throwing a net over a flock in the dusk.

800.—*Pterocles fasciatus*, Scopoli.

This very beautiful bird is common about all the low ranges of hills. Sometimes it is met with under the shade of the "*tor*" (*Euphorbia Royleana*) about half-way up the hills, but, as a rule, small parties are generally flushed at or near the base of the hills where the ground is mostly stony. My first acquaintance with this bird was made on the 4th March 1871. I had been beating the hill sides for pig and sambar all day in company with Thakoor Kesree Sing of Koochamun—the finest specimen of a native gentleman it has ever been my good fortune to meet—when on our return home I noticed a number of these birds rising up before our horses, as we crossed a patch of stony ground. On my asking the Thakoor if they were rare about his hills, he replied that they were generally to be found in twos and threes, but that if I liked he would take me to the drinking place of the birds which was only a little way off our road home, and there I should see them coming in hundreds to drink. Accordingly we at once started for the pond. The patch of water—it could hardly be called a pond—was situated in a tope of babool trees close to a large pucca well. We reached the place about half an hour before sunset, and then I observed a few pigeons and doves, a wagtail and a redstart coming to drink; about half an hour after the sun had set, or when it was dusk to all intents and purposes, I heard the peculiar cluck, cluck, which *fasciatus* makes when rising, and some six or seven birds flew rapidly through the clump under the babool trees and settled down on the bank about eight feet from the water. There they lay perfectly still for two or three seconds, and then all of them commenced a rapid run down to the water. By this time others came flocking in, and in about five minutes I could see that there were about fifty birds collected. It was now so dark that, although only about twenty yards distant from them, I required my binoculars to see the birds.

I fired at a group of six and killed two, the other birds flew off uttering their clucking call; all flew very low round the tope

and again settled down near the water. I again fired and killed five with one barrel, and when the birds returned I killed three more. After the third shot, none returned. Of the ten birds shot four were females, and on dissection I found that the eggs were far advanced. In two birds the yolks were well formed, and one had the shell pretty tough, but without any coloring on it.

I asked the Thakoor to assist one of my servants in looking for the nests, and the first was found on the 3rd April. I have since obtained fresh eggs in May. The nest, I was told, was simply a hollow scraped in the ground with a number of small pieces of stone round the edge, and some loose grass for a lining.

The number of eggs in each nest varies from two to three, but in one nest four were found. When fresh, the eggs vary from a deep to very pale salmon color, but when blown, the color changes in a few days to a rich cream color, and all are pretty uniformly spotted and speckled with light lavender and rusty. They are of a blunt oval form and measure in length about 1.4, and in breadth nearly one inch.

802.—*Pterocles exustus*, *Temm.*

The common sand grouse is found here throughout the year in great numbers. It breeds here, and I have taken the nests in April and May.

I have seen a nest here at the root of a tuft of sarpat grass, the leaves of which protected the bird from the sun's rays. The nest had a lining of loose pieces of grass, and contained three eggs.

803.—*Pavo cristatus*, *L.*

In Rajputana this bird is considered sacred, and the shooting of it is prohibited; it is consequently very common and very tame. It breeds in the beginning of August, and when the young birds are hatched, the parent bird keeps them well out of sight, but as they grow up, no danger being anticipated, the young are brought on to the roads and about the temples without any fear.

822.—*Ortygornis ponticeriana*, *Gmel.*

This species is very common everywhere round the lake. I have taken its eggs during May. I have seen this bird take three separate flights and each time settle in a tree.

827.—*Perdicula asiatica*, *Lath.*

Not common. I obtained a few specimens of these birds from the scrub jungles near the Koochamun hills. The young males

were barely distinguishable from the females, but for a few black cross bars on the breast feathers.

Male, length, 7·1; expanse, 10·3; wing, 3·2; tarsus, 1; bill at front, 0·55.

Female, length, 6·7; expanse, 10·1; wing, 3·1; tarsus, 1; bill at front, 0·5.

829.—*Coturnix communis*, Bonn.

This bird is often met with in grass lands or near to cultivation. A male in my possession has none of the black spots and blotches on the breast, sides of neck and flanks described by Jerdon.

830.—*Coturnix coromandelica*, Gmel.

The black-breasted quail is nowhere common, but it is now and then met with amongst the scrub and cactus jungles near the foot of the hills.

836.—*Otis Edwardsi*, Gray.

Although I have never seen this bird about here, it has been shot by some of the Railway Engineers so close to this neighbourhood as to warrant my including it in this list.

837.—*Houbara Macqueeni*, Gray.

I have met with this bird on three occasions during the cold weather, and out of a party of six I obtained two and wounded a third; it is very wary. One morning I flushed a Houbara, and when it settled on the top of a sand hill, it turned round and deliberately watched my course, and when I reached the top of the sand hill, I found that it had turned at a right angle to the line I was taking.

839.—*Sypheotides auritus*, Lath.

I have only obtained one specimen of this bird, a fine male, at Sambhur. It was shot on the 19th July.

840.—*Cursorius coromandelicus*, Gmel.

This species is very abundant about the lake during the whole cold season. It frequents the sandy plains, and is frequently seen in company with flocks of *Cursorius gallicus*. I saw a few birds towards the end of May, so it is probable that it breeds here.

840 bis.—*Cursorius gallicus*, Gmel.

The cream-colored courser is very abundant all over the sandy plains during the cold weather. On the approach of the hot weather it disappears, and I believe goes further west or

north to breed. I have sent three parties in three different years to obtain the eggs, but have never succeeded. There is a great difference in the color of the birds; some are very pale, while others are very deeply colored. Mr. Hume has obtained large numbers of the eggs from the Sirsa district, where *C. coromandelicus* is unknown.

848.—*Ægialophilus cantianus*, Lath.

Large flocks of ring plover are found about the lake edge during the rains and the cold weather. A young male shot 10th March 1873, has the band on the forehead, the streak on the lores and ear coverts, and the patches on the sides of the breast deep black.

849.—*Ægialitis fluviatilis*, Bechst.

This species is very common all about the grass lands adjoining the lake during the cold weather.

851.—*Vanellus cristatus*, Meyer.

This species is very rare. I have seen it twice at a lake near to Koochamun, and have only obtained one specimen.

852.—*Chettusia gregaria*, Pall.

Not very common; during the cold weather it is to be met with sparingly about the plains. All the specimens I have are in winter plumage, and have the head brown with black spots, and dusky spottings all over the breast.

853.—*Chettusia flavipes*, Savigni.

Not common, but small parties of this species are met with in the open plains during the cold weather. In one specimen of what I take to be a young bird, some of the tail-feathers are tipped with brown on their outer webs.

855.—*Lobivanellus indicus*, Bodd.

This species is very common. I have taken its eggs from March till July. The nest is a small hollow in the ground, without any lining; round the edge of the nest a few small stones are placed. A pair nested on the high-water level of the lake near to where salt had to be stored, and I have repeatedly seen the bird sitting on the eggs, although the natives were passing backwards and forwards within a yard of it. The young run about as soon as they are hatched, and when pursued try to make themselves look smaller, if that were possible, by squatting near a stone or piece of earth. The parents are

equally frantic with grief and pleasure when they see the young caught and let loose again.

The young birds have head, sides of neck, and breast black, with rufous tips to the feathers. The back is a pale-brown with a greenish tinge, all the feathers being edged with rufous white. The wattle in the specimen before me is about a tenth of an inch long, and this, together with the eyelids, base of bill, and legs are all pale-yellow.

859.—*Ædicnemus crepitans*, Temm.

I have only met with the stone plover in the scrub jungle near to Mata Pahar and the low range of hills to the west of Nawa. At the latter place I saw a party of four.

Female, length, 16·5; expanse, 29; wing, 9·1; tail, 4·7; tarsus, 3·3; bill at front, 1·9; from gape, 2·1.

863.—*Grus antigone*, L.

The Sarus is very common, and although generally seen in pairs, I have seen as many as thirty young and old feeding together. Although the people of Rajputana do not worship the bird, they object to its being shot, and they look upon the killing of the pair as a lesser sin than the killing of one. Should one of a pair be killed, the native belief is that the surviving bird calls all the long-night for its mate, and beats its head on the ground until it dies. I took the eggs of this bird on the 23rd August. The nest was in a patch of grass land flooded by the rains. One bird was on the nest, and the other was standing near, but neither showed any inclination to fight.

865.—*Grus cinerea*, Bechst.

I have only seen one flock of this species about the lake, and that was during last cold weather.

866.—*Anthropoides virgo*, L.

This crane visits the neighbourhood in large flocks during the cold weather. On the 13th March 1873 I saw a flock in a field near to Nawa, but I did not get a shot at them.

871.—*Gallinago scolopacina*, Bp.

Owing to the entire want of marsh land, this species is rarely met with in any number. During the cold weather I have shot one or two about the banks of the open wells.

872.—*Gallinago gallinula*, L.

Very rare. I have only procured one specimen.

873.—*Rhynchæa bengalensis*, L.

The painted snipe is only seen here during the rains; about that time a few birds are met with about the swamps, which look like large patches of water during the rains, but which entirely dry up on the approach of the hot weather.

875.—*Limosa ægocephala*, L.

This bird frequents the lake edge in large numbers during the cold weather.

877.—*Numenius lineatus*, Curv.

The curlew is frequently met with feeding in fields of young grain. I have seen small flocks of seven and eight birds, but generally it is found alone. It utters its fine loud call when flushed, and seems to be more noisy in the morning than at any other time of the day.

Bill black, pale fleshy near the gape, on the lower mandible. Male, length, 22·5; expanse, 4·55; bill at front, 5·6; from gape, 5·45; wing, 11·5; mid-toe and claw, 2.

On the 10th April I obtained a specimen of this bird with circlets of lake mud on each leg just above the foot. These were about two inches in diameter and three quarters of an inch thick, and completely covered with a crust of salt. The last bird I observed was on the 18th May.

580.—*Philomachus pugnax*, L.

Very common in the cold weather. Large flocks frequent the lake and also visit the neighbouring fields.

882.—*Tringa subarquata*, Gould.

The curlew stint visits the lake only in small numbers during the cold weather. I recently, on the 21st of May, obtained a female of this species in very nearly full summer plumage.

883.—*Tringa cinclus*, L.

The dunlin frequents the lake edge in large numbers during the cold weather.

884.—*Tringa minuta*, Leisler.

Large flocks of this little stint frequent the lake during the cold weather. Up to the 25th May 1873, I have obtained these birds in their full summer plumage. By the end of May they had all left.

892.—*Totanus ochrophus*, L.

Common. Single birds are always to be seen in the cold weather feeding round the edges of open wells. The outer tail-

feathers have spots of light brown on the outer web near the tip, and the longest feathers of the upper tail coverts have a pale-brown round spot near the tip.

893.—*Tringoides hypoleucos*, L.

Very rare. I have obtained only one specimen.

894.—*Totanus canescens*, Gmel.

Very rare. I shot a female 4th May 1873, changing into the summer plumage.

896.—*Totanus fuscus*, L.

Not very common. Upper tail coverts banded brown and white. In one specimen that I have, the central tail-feathers are nearly the uniform dark-grey Jerdon describes, but they show traces of bands; and in other specimens these feathers are distinctly banded with dark-brown and dusky-brown.

897.—*Totanus calidris*, L.

This species is sparingly met with during the cold weather.

898.—*Himantopus intermedius*, Blyth.

Immense flocks of this bird frequent the lake from the commencement of the rains till the beginning of the hot weather, and a few stragglers are to be found now and then about the fresh-water ponds during the summer months. In young stilts the interscapulars vary in color from a light to a dark shade of brown. Extent from 27·4 to 28·8. Legs and feet, red.

899.—*Recurvirostra avocetta*, L.

This species is rare about the lake. During last rains, I obtained four specimens from the Sambhur side and one from the Nawa Goodha side of the lake. The last bird was shot on the 3rd March 1873. Since that time I shot a specimen on 9th April. Male, length, 17·9; expanse, 29·3; wing, 6; tarsus, 3·2; bill, 3·9; tail, from vent, 3·7; irides, reddish-brown.

901.—*Hydrophasianus Chirurgus*, Scop.

I have only observed one specimen of this bird here. It was in full summer plumage. Shot 5th June 1873.

903.—*Fulica atra*, L.

This species is somewhat rare, but it is now and then seen on the ponds and about the open wells.

904.—*Gallicrex cristata*, Latham.

I have observed this species only once here. On the 23rd June 1873 I found a female skulking amongst some reeds in an

open well, and it was with great difficulty that I succeeded in flushing it. Irides, yellow. Bill, upper mandible dusky, horny yellow at base, lower mandible pale yellow, horny at tip. Legs and feet, dusky green. Length, 13·5; expanse, 22·7; wing, 17·0; tail, from vent, 2·8; bill at front, 1·3; tarsus, 2·5; length of foot, 5·1.

905.—*Gallinula chloropus*, L.

Numbers of this bird frequent all the open wells here. It has a fine loud call, which it utters when feeding about the fields in the early morning. When pursued it runs quickly with its tail erect to the well, and lies close in the long grass near the water.

908.—*Porzana akool*, Sykes.

This bird is not common. It frequents the open wells, and is very difficult to find once it gets into the cover of the long grass which grows thickly on their banks.

Female, length, 11·9; expanse, 19; tail, from vent, 2·2; wing, 6·4; bill, from front, 1·2; tarsus, 1·6.

915.—*Leptoptilus dubius*, Gmel.

I have only observed two pairs of this bird about here, and that was during the rains.

917.—*Mycteria indica*, Lath.

I have only seen a pair of young birds of this species here. The female was shot on 26th March 1873. The head and neck were tawny-brown; on the head there are one or two feathers glossy blue-black.

The back and shoulder of wing, brown, with pale tippings to the feathers. Scapulars and secondary coverts, dull glossy-green. Beneath, white; the breast has some ashy markings on the feathers and an interrupted dark ashy band. Tail, one-third at base, white; the remaining two-thirds glossy green; all the feathers tipped white. Length, 52·8; expanse, 85·9; wing, 24; tail, from vent, 9·6; tarsus, 13·5; bill, at front, 11·5; length of foot, 7·5; irides, brown.

420.—*Melanopelargus episcopus*, Bodd.

The white-necked stork is a constant visitor during the rains. I have noticed small flocks of seven or eight working after the frogs which abound in the open wells. Top of the head, black, with dull green reflections.

923.—*Ardea cinerea*, L.

The blue heron is very rare about this. I have only seen three specimens, and of these I obtained two.

926.—*Herodias intermedia*, Hasselq.

This egret is not very common.

927.—*Herodias garzetta*, L.

This species is somewhat commoner than the last. Irides, pale-yellow.

929.—*Bubulcus coromandus*, Bodd.

The cattle egret is very common about this. It breeds in June and July. In a village close to Sambhur I found a breeding place in which some hundreds of birds had their nests.

930.—*Ardeola Grayii*, Sykes.

This species is not very common. Its favorite hunting ground is an open well with a moderate amount of grass on the sides.

931.—*Butorides javanicus*, Horsf.

I have never shot this bird here, but during the rains of 1871 a pair were seen on the edge of a water-course, and my servant obtained the male bird. The head and crest feathers are dark glossy green. There is a well defined line of darkish rufous grey from the beginning of the throat to the breast.

938.—*Tantalus leucocephalus*, Gmel.

The Pelican Ibis is not often met with in this neighbourhood. I have generally observed solitary birds, and these frequent the open wells which are used for irrigating the fields. One which I shot in December 1872 had the glossy green reflections on the wings and tail very brilliant, and on the breast a black band which broadened on the flanks, with white tippings to all the feathers. Bill, pale-yellow, dusky-greenish at the base; skin on head and throat, gamboge-yellow; irides, pale-brown. Female, length, 38; expanse, 69·75; wing, 19·5; tail, from vent, 6·5; bill, from gape, 9·2; tarsus, 9·2; mid-toe and claw, 4·7. I saw a pair on 25th May 1873.

939.—*Platelea leucorodia*, L.

I have met with small flocks of the spoonbill during the rains only.

941.—Threskiornis melanocephalus, L.

During my residence at Sambhur, I have only observed this species on one occasion, *viz.*, on 19th June 1873. The specimen shot was a fine male. All the quills were white, with the exception of one, which had a narrow black line about an inch in length. Irides, dark-brown; legs and feet, very deep purple, almost black. Length, 30·9; expanse, 53·3; wing, 15·3; tail, from vent, 5·1; bill, at front, along curve, 7·7; tarsus, 4·3; length of foot, 6·2; the elongated re-curved breast feathers measured 4 inches.

942.—Geronticus papillosus, Tem.

This species is very common, and is generally seen in small flocks of four or six feeding together. I saw eggs of this bird taken in the month of September, and on the 10th August 1873 my attention was called by a tremendous screaming to a pair of these birds on the top of a pekul tree. On looking up, I found the birds busy courting; both of the birds were screaming loudly and waving their long necks about in a most absurd manner.

In young birds the red papillæ on the head are replaced by fuscous brown feathers.

944.—Phoenicopterus roseus, Pall.

When the late Lord Mayo visited the lake, he was much struck with the view he obtained from one of our highest salt heaps of the brilliant masses of rose-colored flamingoes stretching away to the horizon.

Flocks of this bird appear after the first heavy showers of rain, and the length of time they remain here depends on the amount of water in the lake. This year I saw the last flock about the middle of March, but last year, when there was more water in the lake, they remained till the beginning of April. I give the measurements of a male and female—

		Length.	Expanse.	Wing.	Tarsus.	Tail.	Bill along curve.
Male	...	50	56	17·5	14·9	6·0	6·4
Female	...	40·2	62·5	15·0	10·4	5·1	5·6

When they first arrive they are easily shot. I have knocked over six with one barrel, but they soon became very wary. At the beginning of May 1873 we had showers and storms for six days, and on the 7th and 8th I observed two small flocks of this bird in the lake.

944 bis.—Phoenicopterus minor, Geoffr. St. Hil.

This bird was observed in large flocks during the cold weather of 1872, *vide* my Note, page 32, ante. Last cold weather, besides obtaining specimens of the adult bird, I have

obtained what I presume is the young of this species; but it is strange that I never observed one of these young birds during my numerous hunts after the adult birds last year.

Description of young birds.—Head, neck, and breast, pale dusky-ashy, darker on the throat and upper part of the neck, and on the breast in some specimens there is a brownish tinge, and all the shafts of the breast feathers are dark-brown. Abdomen and lower tail coverts, white. Primaries, black. Wing coverts, from a light to a dark-brown, with all the feathers darkly shafted; back brown, with pale edges to the feathers. The under coverts of the wing and wing lining, very delicate rose color, and on each of the covert feathers there is a narrow black line running along the quill about an inch and a half from the tip.

Bill, deep leaden-ashy, with a tinge of deep red about the middle and on the sides. Membrane round the eye, deep leaden; legs, leaden-ashy.

	Length.	Extent.	Wing.	Tarsus.	Mid-toe and claw.	Bill, from gape, straight.	Tail, from vent.
Male ...	29.2	49.9	12.2	6.5	2.8	3.4	3.8
Female...	26.5	51.5	12.8	6.4	2.7	3.3	4.0

Nearly all the young I obtained were shot in December 1872, but my attention was first drawn to the young birds by a specimen shown to me by one of my officers, Mr. Braybrooke, who shot it about the close of the rains. The last flock of this species observed this year was on the 2nd March. I sent a man after them, but he could not get near them. There were no young birds in the flock.

In the adult birds the irides were crimson on a whitish ground.

949.—*Anser indicus*, Gmel.

This goose is only occasionally met with in very small flocks. I have succeeded in obtaining two specimens only.

Bill, legs, and feet, pale-yellow; the bill has a purplish tinge about the gonys and nostrils, and the nail is of a deep slaty-blue color; irides, dark-brown.

Female, wing, 16.7; tail, 5.5; length, 27.1; expanse, 54.1; bill, from gape, 1.85.

950.—*Sarkidiornis melanonotus*, Penn.

I have only seen one bird of this species at Sambhur, and that was during the rains of 1871. Last year, however, a fine male was shot for me in September.

954.—*Casarca rutila*, Pall.

The brahminy duck is very rare about Sambhur. I have never seen it, but on the Koochamun jheel I once saw three birds.

957.—*Spatula clypeata*, L.

This species is very common during the cold weather on the lake and about all the patches of fresh water in the neighbourhood. Irides of the male, pale-yellow; of the female, brown.

959.—*Anas poekilorhyncha*, Gmel.

This duck is met with throughout the year, but is seen in greater numbers during the rains.

961.—*Chaulelasmus streperus*, L.

The gadwall is very common about the lake and neighbouring ponds during the cold weather. A fine male measured—length, 21·5; expanse, 35·2; tail, from vent, 3·8; wing, 10·9; tarsus, 1·5.

964.—*Querquedula crecca*, L.

The common teal is very plentiful in the cold weather, and is to be found in the lake until the water becomes very salt.

The glossy part on the sides of the head and the speculum is green, with purplish reflections; the lower tail coverts are deep black with bluish reflections.

965.—*Querquedula circia*, L.

I have observed only a few small flocks of the blue-winged teal on the lake during the cold weather.

967.—*Fuligula rufina*, Pall.

The red-crested pochard frequents the lake and ponds during the cold weather, but it does not occur in large numbers.

968.—*Aythya ferina*, L.

I have observed a few small parties of this species during the cold weather. A fine male I have has the breast deep-brown, with silvery edgings to the feathers.

969.—*Aythya nyroca*, Güld

This species is another of our cold weather visitants, but it is not common.

975.—*Podiceps minor*, L.

This bird is met with very commonly on all the ponds and jheels. Irides, pale yellow.

980.—*Larus brunneicephalus*, Jerdon.

This species is very plentiful during the whole cold season and up to the beginning of the hot weather. Towards the hot weather it leaves the lake and frequents the fresh-water ponds.

981.—*Larus ridibundus*, *L.*

Very plentiful during the cold weather and up to the beginning of the hot weather.

I have a fine male in full summer plumage which was shot 15th March 1873. Length, 17·5; expanse, 37·7; tail, from vent, 4·7.

983.—*Sterna nilotica*, *Hasselq.*

Common during the cold weather. I have a female, shot 3rd September 1870, without a single streak in the head feathers; all the feathers of the occiput and nape are very pale light-grey.

984.—*Sterna hybrida*, *Pallas.*

The small marsh tern is very common about the lake during the cold weather; when the brine becomes dense, it takes to the fresh-water ponds. I have birds in a variety of plumage, shot on 21st April, one in full summer dress, others with grey and white feathers on the breast, and one with about half an inch of white on the forehead and no grey on the breast. The legs of this latter bird are very dark in color, while the legs of the others are very dull-red.

1001.—*Pelicanus onocrotalus*, *L.*

I have only obtained one specimen of a pelican. At different times I have seen flocks flying overhead, but I have never seen a flock settled about the neighbourhood. The bird I captured had met with an accident of some sort and could not fly, and it was captured alive.

1005.—*Graculus carbo*, *L.*

The large cormorant is rare. I once saw a party of about ten, and succeeded in securing a pair. The male, shot 30th March 1871, had the white hair-like feathers on the neck which Jerdon mentions.

1007.—*Graculus melanognathus*, *Brandt.*

This species is not common, but small parties are now and then seen about the ponds.

1008.—*Plotus melanogaster*, *Penn.*

I have only observed this bird on one occasion at Sambhur, 21st June 1873. The specimen obtained was a male. The

back, upper tail coverts, and all the lower parts are deep black with glossy green reflections. Irides, pale greyish-yellow, with an inner and outer ring of pale yellow. The upper mandible of the bill is dusky yellow, the lower mandible, gamboge yellow, whitish at the tip. Legs, dirty white, the toes and web mixed black and dirty white, the black being greatest on the outer toe and web, and decreasing inwardly.

Length, 37·1; expanse, 47·2; wing, 14·1; tail, from vent, 10·5; bill, at front, 3·9; tarsus, 1·7. The testes were ·6 in length.

P. S.—I have just procured a single specimen of a bird which I never before saw in this neighbourhood, *viz.* :

208.—*Ololygon passerinus*, *Vahl*.

R. M. A.

Novelties.

Arachnechthra andamanica, *Sp. Nov.*

Nearly allied to *A. jugularis*, *Lin.*, *A. frenata*, *Müll.*, and *A. flammaxillaris*, *Blyth*. Bill at front, 0·8 to 0·87; under surface, pale yellow, or yellowish white; axillary tufts, bright gamboge yellow, without the slightest tinge of flame color, or orange; a more or less reddish olive brown pectoral band, bounding the metallic gorget.

THE above diagnosis suffices, it seems to me, to separate from all previously described species, the Andaman honey-sucker, which has hitherto been identified with *frenata* of Müller. Having now obtained a large series of this Andaman species, males and females in breeding, and non-breeding plumage, I can not myself doubt its distinctness. From *A. pectoralis*, *Horsf.*, so common in the Nicobars, it is like the three species referred to in the diagnosis at once distinguished by the absence of any metallic, blue, or purple patch on the forehead; from *jugularis* it is distinguished by the much larger size of its bill, which Jardine gives at 0·7 from forehead to tip, and by the much paler hue of its whole under parts, as well as of its axillary tufts. Of the three species it most closely approaches *jugularis*, and Jardine's description of this bird "chin, throat, and upper breast, deep steel blue, intensely dark in the centre, and at the sides a few dark brown feathers indicating a brown terminal band,"

is peculiarly appropriate so far as the passage in italics is concerned, only it should be here noticed that the outermost portion of the metallic throat and breast patch, has a decidedly steel green and not a steel blue lustre ; from *frenata* it differs by the almost entire absence in the adult male in full plumage of any yellow supercilium, or trace of yellow on the cheeks, by its reddish or olive brown pectoral band, and by the much paler hue of the under parts ; from *flammaxillaris* it differs by its much longer bill, by its much paler lower breast and abdomen, by the axillary tuft being pale gamboge yellow, without a tinge of flame color, or orange, and by the dark pectoral band being olive brown, with only in some specimens a slight reddish tinge, instead of dark red.

We obtained this species in every part of the Andaman group. We have specimens from every station about Port Blair, from the Jolly Boys, Macpherson's Strait, from Stewart Sound between N. and M. Andaman, from Little Button in the Archipelago, from Narcondam, from both the great and little Cocos, and from Preparis. We never once observed it in any portion of the Nicobar group, every island of which we visited, and throughout which *A. pectoralis*, Horsf., abounds. The following are the dimensions, taken in the flesh, and description of this new species :

Males, length, 4·5 to 5 ; expanse, 6·5 to 7 ; wing, 2·1 to 2·15 ; tail, from vent, 1·4 to 1·75 ; tarsus, 0·5 to 0·62 ; bill from gape, 0·9 to 1 ; bill at front, 0·8 to 0·87 ; wings, when closed, reach to within 0·75 to 0·85 of end of tail.

Females, length, 4·4 to 4·7 ; expanse, 6·25 to 6·5 ; wing, 1·82 to 2·02 ; tail, from vent, 1·22 to 1·4 ; tarsus, 0·55 ; bill from gape, 0·97 ; bill at front, 0·75 to 0·8 ; wings, when closed, reach to within 0·62 of end of tail.

Description.—Bill, legs, and feet, black ; irides, deep brown. Male in full breeding plumage ; whole upper parts, including sides of head and neck and wings, hair brown, darkest on the quills ; the feathers of the wings narrowly margined on their exterior webs with olive green, and the rest of the feathers, more or less tinged, or suffused with this color. The amount of this tinging varies very much in various specimens, in some there is only a trace of this, in others it almost entirely hides the brown. In fact the difference is as great as between the summer and winter plumage in some of the *Phylloscopi* ; in some specimens there is more green on the rump, in others the tinge is decidedly brightest on the head and interscapular regions ; some birds almost entirely want this tinge, and these have absolutely no trace of a supercilium, others again, in which the green tinge is more marked, killed as a rule towards the middle or

latter half of April, and which are about to doff the breeding garb, shew a pale yellowish white supercilium, more or less distinctly ; it is the birds killed from December to March, during which period they breed, that are brownest above, and are characterized by the absence of the supercilium. The tail is black ; the external lateral feathers broadly tipped for nearly one-third of their extent on both webs with white ; the white of the outer webs, however, being tinged with pale brown ; the next pair on each side have the inner web white for about 0·2, and the outer web brownish white just at the tip ; the rest of the tail feathers are excessively narrowly margined at their tips with white ; sometimes the exterior web of the outer tail feather is margined whitish the whole way up ; the chin, throat, and upper breast have metallic reflections, deep purple in the centre, and a steely green along the sides. Immediately below, is a narrow more or less imperfect band, olive brown, with, in some, a more or less ferruginous tinge, the rest of the lower parts are yellowish white, or pale yellow, according partly to season, and partly to individuals ; and the axillary tufts which are conspicuous, are pure, rather pale gamboge yellow, in some specimens almost primrose yellow.

Towards the middle of April the males doff the breeding plumage, the upper surface becomes somewhat greener, and the rump slightly brighter colored, the superciliary stripe, though still very small, becomes distincter and pale yellow ; the chin, throat, and breast become a clear pale yellow, with only a moderately broad central stripe of steely blue feathers ; the brown pectoral band disappears.

The female closely resembles the male, is browner when he is browner, greener when he is greener, and shews more or less supercilium, at the same time as he does ; but always I think shews rather more ; she differs in having the chin, throat, and upper breast always pale yellow or yellowish white ; and in never exhibiting any trace of the brown pectoral band.

These descriptions are founded on sixteen specimens of males and ten of females, killed in different parts of the Andaman group, between December and the end of April. This species is very common in the Andamans ; and had we not had so many other birds to attend to, we might have secured any number of specimens.

Ephialtes Balli, Sp. Nov.

Of the pennatus type; but larger than either pennatus, Hodg., or spilcephalus, Blyth. Terminal one-fourth of tarsus, bare; wing, 5·78; upper surface, with a few small, pale, rufous buff spots, more or less surrounded with a narrow blackish line.

THIS fine species, which is certainly new to our Indian avifauna, is the one noticed, doubtfully, by Mr. Ball, as *E. spilcephalus*; (*vide ante*, p. 53.) It is, however, quite distinct from this species, of which I have now a large series, and which never assumes the rufous phase; moreover, the spottings on it are of a totally different character, and it has a greater extent of the tarsus bare. It is impossible to say whether this may, or may not, be *gymnopus*, Gray, as I can find no detailed description of that species, nor does there appear to be any certainty as to where the type specimen was procured. Such Malayan specimens as I have seen, did not appear to me to differ from our Indian *pennatus*, and though I suspend my opinion on this point, I am inclined to doubt whether *P. malayensis*, Hay, is a good species, and anyhow there is no doubt, I think, that it differs quite as much from the present species as does *pennatus*.

Mr. Ball has already described this bird; but a fresh description may be useful.

We have as yet, unfortunately, only a single specimen, and this was not measured in the flesh, nor was the sex ascertained and recorded.

Dimensions.—Length, about 8; wing, 5·78; tarsus, 1·15; bare portion, 0·3.

Description.—The whole upper surface is a rich deep, somewhat ferruginous, rufous brown, a tint altogether different, from that ever assumed by *pennatus*; it is faintly freckled, and vermiculated with black, and bears a few small pale rufous buff spots, more or less surrounded by a narrow blackish line; the primaries are hair brown, tinged rufous on the outer webs, which exhibit four or five conspicuous white bars, with traces of dark margins; the inner webs are unmarked, except quite at the base, where towards the margin there are three or four conspicuous yellowish white spots, or imperfect bars.

The ground color of the lower surface is a rusty buff, but little of this is seen, as the feathers are everywhere finely freckled and vermiculated, and bear the usual black and white spots, or dashes, though these are less conspicuous than in the allied species; the tarsal plumes are mingled rusty and blackish brown; the tail is like the upper surface; but rather more strongly

vermicilated, and with a few irregular paler bars, bounded by darker lines; the bars do not extend to the tips of the feathers. The toes and claws are particularly long.

Dissemuroides, Gen. Nov.

Bill resembling that of *Dissemurus*; rictal bristles, feebler; no crest; a tuft of hair like feathers on the forehead, springing from each side of the base of culmen; tail much as in *Buchanga albirictus*, Hodg., and *longicaudatus*, Hay, but longer, and the exterior feathers more than proportionally elongated, with the tips curved over towards the centre of the tail, as in *Chibia hottentotta*.

AFTER comparing the king-crows of the Andamans and the Cocos, allied, but quite distinct, species, with all the dicrurine birds of our part of the world, I am unable to identify them with any genus of the family which is represented in India and its dependencies. The elongated, powerful, sharply carinated bill is that of *Dissemurus*; but there is no trace of a crest, the exterior tail feathers are only slightly lengthened, have no portion of the shaft bare, nor even of the webs narrowed; the tail, though longer, is much like that of our common king-crow; but the whole tips of the external pair are turned well over, as in *Chibia hottentotta*, and even more strongly so than in that species; besides all this, there is the peculiar tuft of re-curved frontal bustles, springing from either side of the base of the culmen, I have therefore separated these two birds* under the above generic name, and give the following species as the type:

Dissemuroides dicruriformis, Sp. Nov.

Length, 13·25-14·6; *wing*, 5·6-5·9; *bill*, from gape, 1·4-1·5; *tarsus*, 0·9-1.

It is only in size that this species differs from its congener *andamanensis*; but that difference is so great, so invariable, and so apparent to the eye even in the live bird, that I cannot avoid separating the birds from great Cocos and Table Island, from those of the Andaman group proper. It must not be supposed that I have assumed this difference of size from insufficient evidence. We shot a very large number of both species, and I have now before me nineteen of the present species, and thirty-

* *D. lophorinus* Vieill would also apparently be included in this genus.

one of *andamanensis* procured at Mount Harriet, Port Mouat, Aberdeen, Macpherson's Straits, and other localities in the southern half of the Andaman group. None of these fifty specimens shew the slightest indication of bridging over the difference in size between the two species. The nineteen big birds, and the thirty-one smaller ones, stand distinct and apart. I have given above a resumé of the dimensions of the present species taken in the flesh. I subjoin for comparison the same dimensions similarly recorded of the Andaman bird.

Length, 11·25-12; wing, 5·5-25; bill, from gape, 1·2-1·35; tarsus, 0·8-0·9.

Except the quills, and a few white spots, at the tips of some of the axillaries, and under wing coverts, the whole bird is a dull black everywhere, rather faintly glossed with a greenish blue metallic reflection, most faintly so on the lower surface, and the gloss, most decidedly green on the wing coverts, the outer webs of the secondaries, tertiaries, and tail feathers; the primaries are entirely hair brown; the secondaries, similar, but darker on the outer webs, where they are glossed greenish; the tertiaries, and sometimes some of the later secondaries, dull black, or blackish brown, more or less glossed on both webs.

I may add the following dimensions of the present species to those given in the diagnosis: expanse, 16·5-17·82; tail, 7·8-25; weight, 2·25-2·5 ozs. The bill, legs, and feet are black; the irides, dark brown,

Locustella subsignata, Sp. Nov.

Entire under parts, except centre of abdomen and vent, with linear ovate, deep brown, subterminal, shaft spots.

THIS interesting new species has as yet only been procured in the immediate neighbourhood of Aberdeen, Port Blair; I did not myself procure it. Mr. Davison who shot it after I left the Andamans, says:

"I found this little *locustelle* frequenting the same places as *Cyanecula cærulecula*, Pal., viz., the dense scrubby weed growing about the dried up paddy fields; I also, on two occasions, saw it in a garden in a patch of beans, and once I flushed it from a patch of sugar-cane. It is an awful little skulk, and will let itself be almost trodden upon before it will rise. It makes its way rapidly through the tangled weeds, and runs along the ground in a truly surprising manner; in walking through the

weeds I have on several occasions seen this little bird start up and run rapidly along the ground; I am unable to say whether it is a permanent resident at the Andamans, or not; I only met with it for the first time, soon after my return to Port Blair from the Nicobars."

I have compared this bird with *Locustella rubescens*, Blyth; *L. Hendersonii*, Cass., *L. locustella*, Penn; and with the plates of *L. ochotensis*, Mid., and *L. certhiola*, Pallas. It is very close to all of these but closest to *L. Hendersonii*, from which, however, it differs most conspicuously in its strongly streaked under surface. We only obtained two specimens, one very good and one indifferent one; but as the fates would have it, out of the four wings, only one is perfect; in this one wing the second quill is a hair's breadth the longest, instead of the third being the longest as in the other species of this genus; I do not, however, attach much importance to this, because amongst my European *L. locustella*, I find one bird in which in one wing the second primary is longer than the third.

Dimensions.—Length, 5.1; wing, 2.15; bill at front, 0.4; tail from vent, 1.9; tarsus, 0.7; hind toe and claw, 0.5. The second primary conspicuously notched on the inner web just at the tip, the notch being much nearer to the tip than in *rubescens*, *locustella*, or *Hendersonii*. Bill, upper mandible, brown; lower mandible, pale fleshy white; legs and feet, very pale fleshy brown; irides, reddish wood brown.

The whole upper surface, including the elongated upper tail coverts, a pale, somewhat olivaceous brown, each feather with a conspicuous, blackish brown mesial stripe; the tail which is cuniform, plain pale hair brown, obsoletely barred; primaries and secondaries, the same color as tail, very narrowly margined at the tips with albescent, and less narrowly on the outer webs with pale olivaceous brown; the shafts are albescent; the tertiaries and coverts, a deeper hair brown, broadly margined with the same olivaceous brown, as is exhibited on the rest of the upper surface. There is an obscure buffy white line from the nostril over the eye, and an ill-defined brownish band from the lores under the eyes on to the ear coverts. The whole lower parts are pale creamy yellow, slightly tinged with rufescent on the flanks and lower tail coverts, and except at the point of the chin and on the centre of the abdomen, every feather exhibits near the tips an oval blackish brown shaft spot, which spots are very fine and closely set on the throat, somewhat larger on the breast, broad and conspicuous on the flanks, and for the most part reduced to mere lines on the lower tail coverts; the wing lining and axillaries are unstreaked, pale, buffy-yellow.

Rhyticeros narcondami, Sp. Nov.

A miniature of R. ruficollis, Vieil. Old adult male measured in the flesh, length, 26 in. ; bill, from nostril to point, 4·5 in. ; wing, 12.

As we neared the island of Narcondam, which is a single large hill, some 1,700 feet in height, densely wooded, and standing up solitary in the sea, between the Andamans and the Coast of Burmah, we noticed a number of black looking birds with white tails, flying about from tree to tree; every one at first pronounced them to be *Calenas nicobarica*, of which we had, a few days previously, at Batty Malve seen such vast numbers. As we, however, neared the shore, it became apparent that both the necks and tails of these unknown birds were too long, and the former too clumsy to belong to the Nicobar pigeon. The island is a very difficult one to land on; every where rock-bound, and its foundation running sheer down into deep water, so that a few yards from the water's edge the sea is many fathoms deep. When at last we landed, the whole interior, if I may so call it, of the island, *i. e.*, from beach to summit, was found to be absolutely impenetrable; cyclone after cyclone had prostrated generation after generation of trees, amidst the debris of which, a new, and densely packed generation had sprung up, interlaced with canes and other thorny creepers, and it was with great difficulty that we succeeded in bagging a pair of this strange bird, which turned out to be a small hornbill exactly like *ruficollis*. One or two more were shot, but the jungle was too dense to permit their being retrieved. Luckily we obtained one of each sex; both quite old birds, with six ribs on the casque, and the cutting edges of the mandibles well worn by the wear and tear of many years.

These birds, as far as I can make out from descriptions and plates, exactly resemble, so far as plumage, and the coloring of the soft parts go, *ruficollis*, Vieil; but considering how *much* larger this Papuan species is described to be, as also that it has apparently only been found in new Guinea, the Solomon Islands, Waigou, Mysol, Gillolo, and Ceram, and not in any single locality intervening between these places, which all lie to the east of the 125° east longitude, and Narcondam, which lies in east latitude 94,° I think I am, *prima facie*, justified in describing it as a new species. The following are the dimensions recorded in the flesh:

Male, length, 26; expanse, 41·5; tail, from vent, 8·25; wing, 12; wings, when closed, reach to within 4·5 of end of tail; tarsus, 2·05; mid toe, to root of claw, 1·5; claw only, straight from point to base, 0·7; bill, from nostril to point, 4·5;

bill, from posterior margin of casque to point, straight, 5; length of casque only, 2·67; greatest height of upper mandible including casque, 1·4; of casque only, 0·6; weight, 1 lb. 3 ozs.

Female, length, 24; expanse, 37·75; tail, from vent, 8; wing, 10·75; tarsus, 1·8; mid toe, to root of claw, 1·4; claw only, straight from point to base, 0·55; bill, from nostril to point, 3·6; bill, from posterior margin of casque to point, straight, 4·1; length of casque only, 2·6; greatest height of upper mandible including casque, 1·25; of casque only, 0·6; weight, 1 lb.

In both sexes the irides were pale red; the legs and feet brown; the soles, grey; the bill, pale horny yellow, brownish red at base of both mandibles; the casque has the posterior plate, if I may so call it, reddish brown, the margin horny yellow, the succeeding ridges are also horny yellow, the furrows separating them being blackish brown; the orbital skin is pale smalt blue; the bare gular skin is white, tinged with greenish blue. The whole chin and throat, and the sides of the lower mandible below the eye, as well as the whole region round the eye, are, I should mention, bare; but both above and below the gape, there is a small tongue of feathers which divide, for two-thirds of their breadth, the two bare patches of the orbit and lower mandible.

In the female the entire plumage (except the tail which is pure white) is jet black, glossed on the wings and back with dull metallic green; the male differs in having the front of the neck, below the bare gular patch, a somewhat pale rufous buff, while the whole of the rest of the head and neck are bright chestnut colored.

The casque is low and depressed at the base, just above the nostrils only slightly wider than the upper mandible; but as it decreases in width less rapidly than the bill, it further on, more perceptibly, overhangs this on both sides; it resembles a set of rather thick scales laid one over the other, and each projecting a quarter of an inch or so beyond the one immediately preceding and overlaying it.

Æthopyga nicobarica, Sp. Nov.

Closely allied to the Malaccan Lathamii, Jard., vel eupogon, Cab., and to the Javan mysticalis, Temm., if this latter is distinct, but differs in the conspicuously larger and longer bill (at front, straight from forehead to point, 0·71-0·79.)

WE obtained this species of honey-sucker only on Kondul, one of the smaller islands of the Nicobar group, and situated in the

Strait, dividing the great and little Nicobars, and on Meroe, another smaller island belonging, like the former, to the southern groups of the Nicobars. On the former island they were very numerous. Mr. Davison who saw more of this species than I did, gives me the following remarks in regard to it:

"It frequents the tops of the cocoanut palms in company with *A. pectoralis*, diligently searching among the flowers, now hanging head down, now poising itself in front of the flowers, and occasionally making a short hurried sally, apparently after some insect. I shot several specimens on some low flowering shrubs. It has a short, feeble twittering song which the male utters every now and then. Dr. Stoliczka shewed me a nest of this bird which he had found: it was fastened to the very end of a long narrow pandanus leaf, about thirty feet from the ground: it could not be got at by climbing, and I tried to cut it down by firing at the leaf, about a foot above the nest, but failed."

The chief characteristic of this species is its large bill; it is not a much bigger bird than the Malaccan *Æthopyga* to which type it belongs, as having the blue forehead and tail instead of green as in *miles* and *Vigorsii*, but it has a bill nearly as large as that of the latter species.

At first I was disposed to think that this bird might be the true *siparaja* of Raffles; but it appears to me on the whole unlikely that this should be the case. *Æthopygas* from Wellesley Province, Penang, Malacca, Java, and Borneo appear to be undistinguishable, and under these circumstances it seems, *primâ facie*, more likely that the Sumatran bird should belong to that same species than that it should be identical with the honey-sucker of the comparatively isolated Nicobars.

It may be convenient for comparison to give the exact measurements taken from the flesh of some nearly allied species.

Æ. VIGORSII, male, length, 5.75-6; expanse, 7.75; wing, 2.5-2.65; tail, 2.2-3.7; tarsus, 0.62-0.66; bill, at front, 0.71-0.87.

Female, length, 5; expanse, 6.63; wing, 2.3; tail, 1.63; tarsus, 0.62; bill, at front, 0.71.

Æ. MILES, male, length, 6.38-6.5; expanse, 6.5-7.13; wing, 2.35-2.4; tail, 3.3-2.5; tarsus, 0.56-0.6; bill, at front, 0.75-0.8.

Female, length, 4.5; expanse 6.5; wing, 2.02; tail, 1.63; tarsus, 0.55; bill, at front, 0.7.

In both these species the color of the bill, legs, and feet in both sexes is identical, and in neither have the females any red about the throat, or breast.

ÆTHOPYGA? (Javan specimen,) male, length, 4.33; wing, 1.71; tail, 2; tarsus, 0.49; bill, at front, 0.51.

ÆTHOPYGA? (Wellesley Province specimen) *male*, length, 4.25; wing, 2.1; tail, 1.75-1.87; tarsus, 0.5; bill, at front, 0.52-0.55.

I do not know the females of the above.

ÆTHOPYGA NICOBARICA.

Dimensions, *males*, length, 4-4.75; expanse, 6.25-6.5; wing, 1.82-2.12; tail, from vent, 1.6-2; tarsus, 0.5-0.55; bill, at front, 0.71-0.79.

Females, length, 3.82-4.25; expanse, 5.82-6.12; wing, 1.82-1.9; tail, 1.25-1.6; tarsus, 0.5; bill, at front, 0.61-0.64.

In the male, the legs and feet and upper mandible are dark brown, the lower mandible pale brown; in the female, the upper mandible is horny brown; the lower mandible horny yellow, and the legs and feet, yellow; in both sexes, the irides are brown.

The male has a large frontal patch, the upper tail coverts, the central tail feathers, and the outer webs of the lateral tail feathers, together with a long moustachial stripe from the base of the lower mandible on either side, a beautiful deep metallic violet; the rest of the tail feathers are black; the hinder part of the crown, occiput, sides of the head, nape, interscapular region, scapulars, and middle back, a deep sanguineous red, the same color as in *miles*; a narrow stripe from the sides of the upper mandible, (immediately above the violet moustache,) chin, throat, and breast, a bright, somewhat orange scarlet, much yellower and paler than in *miles*; the bases of the feathers of the chin and throat, a bright pale yellow, which shews through more or less in most specimens, and in some very finely plumaged specimens, the bases of the breast feathers also are yellow, and these shewing through present a streaked appearance, reminding one of *Vigorsii*, the streaks, however, being much narrower than in this species. Other specimens shew no traces of these streaks on the breast; wings, hair brown; the outer margins of the secondaries, tertiaries, and some of the greater coverts, obscurely tinged with dull olive green; abdomen, flanks, vent, and lower tail coverts, a rather dusky grey, decidedly tinged with olive green; the males, in the most perfect plumage, have a small blackish brown patch in the centre of the upper abdomen, just below where the red of the breast terminates, a similar, but larger, and more conspicuous patch occurs in *Vigorsii*; the rump is at first sight greyish black; but when the feathers are pushed aside, the central portion is a gamboge yellow, but with more of an orange tinge than in *miles*, and the yellow patch is much shorter than in this latter species, being about 0.3 in length, against 0.7 in *miles*.

The females have the whole upper surface a rather dark clear olive green, the wings and tail are hair brown, the feathers

edged with olive green ; the chin, and throat and the sides of the breast are a sort of brick-dust red, and all the feathers of the breast are more or less tinged towards the tips with this color. (There is no mistake about this ; we dissected the birds, and though some of the females have a little less red than others, they all exhibit it conspicuously.) The rest of the lower surface varies somewhat in shade in different specimens, but in all is a yellower, and paler olive green than the upper surface.

New Birds from Sikkim, by L. Mandelli.

Heterorhynchus, New Genus.

Characters.—Bill in form like that of *Stachyris*, but longer and deeper, and the section of the lower mandible very square ; nostrils long, and horizontally situated in a shallow short groove ; they are sheltered by a sort of tect, or small segmental projecting shelf ; wings short and much rounded ; the first or small quill is unusually large and reaching nearly two-thirds the length of the wing ; 2nd, .40 inch longer than 1st ; 3rd, .28 inch beyond 2nd ; 4th, .2 longer than 3rd ; 5th, .1 inch longer than 4th ; 6th, .05 inch longer than 5th ; 7th, .03 inch longer than 6th, and the longest in the wing ; 8th, slightly longer than 6th ; and 9th, about equal to 5th ; from this they gradually decrease in the usual manner of very rounded wings. These proportions appertain to a wing 2.7 inches long. The legs, feet, and claws are stout and strong, and similar to those of a *Garrulax* or *Trochalopteron* ; tail much graduated, broad, and soft, of moderate length or rather short for the bird ; plumage, soft and lax, and in character like that of *Garrulax* or *Trochalopteron*.

Heterorhynchus Humei, Nov. Sp.

Description.—Color generally a pure black, spotted or streaked on the head and upper back with rufous brown ; the feathers on the back, the wing coverts, and the outer webs of the quills are finely barred with the same color ; the tail is also finely barred with rufous brown : the spots or small streaks on the forehead are nearly pure white, so are some down the side of the neck, reaching to the bend of the wing ; most of the feathers of the upper surface are light shafted, so are those of the whole lower surface :

there are a quantity of small light streaks all round the eye extending to the ends of the ear coverts: there is a large patch of dull greyish white on the abdomen, the color of the white on *Merula bouboul*; lower part of abdomen, black, like the breast, but streaked with rufous, and this rufous increases in extent till the lower tail coverts are nearly entirely of that color; bill, black; legs, feet, and claws, very dark brown.

Length of skin, 6·4 inches, and in the flesh will probably measure 6·5 inches or more; wing, 2·7 inches; tail, 2·65 inches; bill at front, ·8 inch; depth at base, ·3; width at base, ·2 inch; from gape to tip, about 1 inch; tarsus, 1·07; mid toe, ·8; its claw, ·27; hind toe, ·48 inches; its claw, ·4 inch.

Three specimens obtained from Native Sikhim in February last.

Minla Rufogularis, Nov. Sp.

Description.—Top of head, reaching to upper part of back, rich olivaceous chestnut; remainder of upper parts, olive, with a rufous tinge; tail, dark reddish brown; wings, both coverts and quill feathers, olive brown, edged with reddish brown, over the eye a broad white supercilium continued to the ends of the ear coverts, and this is surmounted by a broad velvet black streak, which extends across the forehead, and is continued over the eye till it reaches the shoulder: the white supercilium is narrowly continued across the forehead immediately under the black frontal band; the eyes are surrounded with a circle of bright white feathers, like those of *Zosterops palpebrosus* and *Abrornis poliogenys*: lores, greyish white; ear coverts, blackish olive, shaded off at the edges; beyond the ear coverts is a crescentic patch of bright fulvous white; chin, and extending slightly beyond, white; throat, dark rusty red; breast, smoke grey on the sides and fading to almost white on the centre; abdomen, white; flanks, dusky olive; vent and under tail coverts, bright ochreous; tibial feathers, olive, with a patch of bright fulvous on the inner side at the joint; bill, black; legs, feet, and claws, pale brown.

The feathers on the top of the head have a similar scaly appearance to those of *Minla cinerea*, and this peculiar character assisted me in placing this bird in the genus *Minla*.

I got one specimen from the Bhotan Doars in January last.

Length of skin, 4·6 inches; in the flesh will probably measure 5 inch; wing, 2·16 inches; tail, 2 inch; bill at front, ·43; from gape, ·6; tarsus, ·83 inches; mid toe, ·6; its claw, ·17; hind toe, ·36; its claw, ·25.

Notes.

INDIAN ORNITHOLOGISTS are greatly indebted to both Mr. W. T. Blanford and the editor of the "Ibis," for a most valuable and kindly notice of "Stray Feathers" which appeared in the April "Ibis."

This article is exactly what I hoped to see. With European museums and libraries to consult, Mr. Blanford supplies many of our deficiencies and corrects errors which, situated as we are here, are at times inevitable.

It is impossible to overrate the assistance that ornithology in India would receive from similar critiques at Home of our work here. After all we are most of us in this country field naturalists; put us any where about the country, let us feel the temperature, have a glance round at the physical character of the scenery; see a little of the vegetation, and we can tell pretty well what birds will be found in the neighbourhood: where exactly to look for them, what they will be feeding on, whereabouts to look for their nests, and a good many other particulars, the knowledge of which is of more value in our eyes than in those of what we somewhat irreverently term "*Cabinet naturalists*." But Cabinet naturalists are no less essential to the real progress of science than field naturalists, and the great mistake that both classes habitually make, is to undervalue each the labors of the others. I myself have no such feelings. I greatly prefer for my own part the out-door work; but this makes me only the more grateful to those who are content to plod over ponderous lists of synonyms, and correct the errors of nomenclature into which field naturalists far away from libraries and general museums are sure to fall.

And now to recapitulate, briefly, the corrections with which Mr. Blanford furnishes us.

First, he now concurs with me in considering *Otocoris Elwesi* identical with *O. longirostris*; next, he points out that my *Ptionoprogne pallida* ("Stray Feathers," vol. I., p. 1.) is an African species already named by Cabanis, *Cotyle obsoleta*, and by this specific name the bird must henceforth be known. *Puffinus persicus*, nobis ("Stray Feathers," vol. I., p. 5.) he thinks is probably identical with *P. obscurus*; but seems to agree with me that more specimens are essential to a satisfactory conclusion on this point. Mr. Blanford is of opinion, and in this, the great authority, Mr. Harting, is disposed to concur with him, that my *Eudromias tenuirostris*, is founded on a young specimen of *Ægialitis Hartingi*, Swinhoe, (P. Z. S., 1870, p. 136, pl. 12,) described from the Yang-tsi-kyang in China.

Since describing this new species (*vide ante*, p. 17,) I have met with a second example amongst some rejected duplicates of my friend Mr. Mandelli's collection. This second specimen was, undoubtedly, procured in the Doars, below Darjeeling, a continuation eastward of the Terai. Dr. Jerdon gave me the type specimen along with a number of Darjeeling birds, and although he *believed* that he had procured it in Burmah (not ten of the two hundred birds he gave me bore any tickets) I have no doubt now that it also was obtained in the neighbourhood of Darjeeling. The second specimen corresponds *precisely* with the first, but is in a better state of preservation.

I suspend my own opinion as to this identification. Certainly neither of my birds are young ones.

In regard to *Procarduelis saturatus*, Blanford, he tells us that he has compared this with the types of *P. pulcherrimus*, Hodg., in the British Museum, and finds them to be distinct. At the same time he adds that his own name *saturatus* will not stand, the bird having been previously described as *Carpodacus Edwardsi*, Verreaux, from Eastern Thibet, (Nouv. Archives du Musée, Bull, vi. 1870, p. 58.)

"*Pyrrhulanda affinis*, Blyth, which I obtained near Kurra-chee," observes Mr. Blanford, "proves to be identical with *P. melanauchen*, Cabanis. I have compared a specimen from Baluchistan, with the type of Blyth's species in Mr. Gould's collection, and with specimens of *P. melanauchen* collected by myself on the Coast of the Red Sea; I have no faith in the occurrence of this species in Madras."

Referring to errors in synonymy, Mr. Blanford points out, that Sir A. Smith's name *Circus Swainsoni* has priority by two years, having been first published in the South African Quarterly Journal for 1830, p. 384, whilst Sykes's name *C. pallidus* was not published before 1832. (P. Z. S., p. 80.)

AT PAGE 160 ANTE, I pointed out what I considered an unfailing rule for separating the female and immature birds of *Circus Swainsoni*, Smith, and *C. cyaneus*, L. Mr. Howard Saunders points out another difference, *C. aruginosus*, *cyaneus*, *spilonotus*, *melanoleucus*, and others have the second, third, fourth, and fifth primaries emarginated on the outer web, while *Swainsoni*, Smith, and *Cineraceus*, Mont., have the emarginations only on the second, third, and fourth, and not on the fifth. Then again in "*Swainsoni*, the emargination of the second primary begins on a level with the wing coverts, so that the bulge or widening of the outer web is almost or entirely hidden; but in *cineraceus*,

this emargination commences nearly or quite an inch below the line of these coverts, and the bulge is visible at a glance."

CAPTAIN J. HAYES LLOYD remarks in the last number of the "Ibis": "I find, as I have long suspected, that the small green barbet of western India is distinct from the *Megalæma viridis* of Malabar and Southern India being distinguishable by its greater size and more pronounced markings. In the Messrs. Marshall's Monograph of the Capitonidæ, reference is made under *M. viridis* (the color of the bill of which, by the way, is given correctly in the letter press, but wrongly in the plate) to a bird obtained by Col. Sykes in the Deccan, the dimensions of which were too large for *M. viridis*, and too small for *M. caniceps*. To any one possessing local knowledge, the locality quoted must seem vague; but I have little doubt that Col. Sykes's bird was the species of which I am now writing, and that it was obtained in the Mawuls, a tract of hilly country dividing the Deccan from the Western Ghauts, I therefore propose to distinguish the small green barbet of Western India as

Megalæma Sykesi, *Sp. Nov.*

Description.—Very similar to *M. viridis*, but the brown of the head and nape paler, with a coppery gloss; the feathers of the head pale edged, those of the nape, with pale central streaks; throat whitish; breast and sides of neck, whitish, each feather broadly margined laterally with dark brown; wing coverts, unspotted; bill, horny brown.

Dimensions, length, 9 inches; wing, 4.3, tail, 3.

This species is abundant in most of the mountainous wooded tracts of Western India. I have obtained it in the Peint and Soorungun districts, which border the Khandeish Dangs, all along the Western Ghauts, and on the summit of Matheran, and other detached hills in the Konkan, everywhere to the exclusion of *M. viridis*, which seems to bear the same relationship to *M. Sykesi* that *M. zeylonica* does to *M. caniceps*.

SINDH AVIFAUNA.—Mr. E. James, c. s., has sent me specimens of ten more species of birds which occur in Sindh and which must be added to my long list (given at p. 148, et seq., of the present vol.) of the birds of that province.

112.—*Caprimulgus asiaticus*, *Lath.*

"Not uncommon about Sehwan."

439.—*Chatarrhæa Earlei*, Blyth.

"I have often met with this species, in reedy banks of streams and canals; I dare say you did see it at Kusmore."

539.—*Cisticola schoenicola*, Bonap.

"I have only seen the specimens I send."

711.—*Gymnoris flavicollis*, Frankl.

Mr. James says, "This species appears about the end of March, and I think breeds with us. It is common to see them feeding on the pollen of the flowers of the wild caper. They leave us, I think, in the autumn."

716 bis.—*Fringillaria striolata*, Licht.

"I only found this species in two places, at the foot of the great range of hills west of the Muncbur Lake. It was in small parties near hot springs, perching on trees and tall reeds, and constantly darting down into the bed of the stream and drinking. I also found a few, several miles away from water, on a bare dry hill side. The names of the places were Phaduk and Gorandee, both in the Sehwan Talooka, and I must here mention that all my specimens were obtained in the Dadu and Sehwan Talookas, *i. e.*, west of the Indus, in the centre of Sindh, the most northerly part of the Kurrachee Collectorate."

721.—*Euspiza melanocephala*, Scop.

"This species comes in at the end of March, in countless flocks in some years, and at all times commits great damage amongst the ripe wheat. It is called "*booree*," *i. e.*, deaf by the Sindees, as no amount of shouting will dislodge it from the crops, and it is only to be moved by stones being hurled into the midst of the flock. In the year 1869, they committed so much damage in some of the magnificent wheat fields which nearly surround the Munchur Lake, that the cultivators would not take the trouble to cut the crops, and threw them all on the hands of their Zemindar. When I first saw these birds they, like *P. flavicollis*, the munias and weaver birds, were feeding on the pollen of the flowers of the wild caper, which you will recollect covers wide tracts of waste ground in Sindh. They only stay a month or five weeks at the outside, and directly the harvest begins in earnest, take their departure."

767.—*Alauda gulgula*, Frankl.

A single specimen sent, not discriminated.

940.—Cursorius coromandelicus, Gmel.

"Is not uncommon in my neighbourhood: it is usually found in pairs; but sometimes occurs in flocks of ten, or twenty. They affect waste ground adjoining cultivation, and stay with us, I believe, all the year round."

891.—Totanus glareola, Lin.

"I have only seen this species in the cold weather. It is not common."

953.—Dendrocygna major, Jerdon.

"Never noticed this species before last season, when I saw them on several occasions in large parties on "Dhunds." I am told by an ornithologist that they are regularly found every year, during the rainy season, on the eastern Narra, a stream which rises at Sukker on the left bank of the Indus, and after passing through Khyrpoor, (Meer Ali Moorad's Territory) and the Thur District, loses itself in the run of Kutch. The lands on each side of this are rather widely flooded every year, and are a perfect paradise for water-fowl."

Most unfortunately for the interests of ornithology, Mr. James has left Sindh, having joined the Bombay Secretariat, and I can only now hope that some other of the ornithologists of Sindh will take up the work he had begun and aid us to complete our knowledge of the Avifauna of the province.

AVIFAUNA OF THE ISLANDS OF THE BAY OF BENGAL.

My friend, Mr. Davison, having spent the whole cold season, and I myself having spent a month in and amongst the Andamans, Nicobars, and other islands of the Bay of Bengal, (some of them like Batty Malve and Narcondam, never previously visited by Europeans,) we propose in the next number to furnish a complete resumé of the Avifauna of these islands. In the mean time it may be noted, that to the birds included in Mr. Ball's list (*vide ante*, p. 51, et. seq.) and in my "additional notes" (p. 304) must be added not only the new species above described

ARACHNECHTHRA ANDAMANICA	...	<i>vide</i> p.	404
EPHIALTES BALLI	...	"	407
DISSEMUROIDES DICRURIFORMIS	...	"	408
LOCUSTELLA SUBSIGNATA	...	"	409
RHYTICEROS NARCONDAMI	...	"	411
ÆTHOPYGA NICOBARICA	...	"	412

but also the following 26, more or less well known species, not previously recorded from these localities.

25.—*Accipiter virgatus*, *Tem.*

74.—*Scops pennata*, *Hodg.*

111.—*Caprimulgus spilocircus*, *Gray.*

133.—*Ceyx tridactyla*, *Lin.*

200.—*Cuculus striatus*, *Drapiez.*

211.—*Chalcococcyx smaragdinus*, *Blyth.*

213.—*Coccytes coromandus*, *Lin.*

289.—*Tchitreia affinis*, *Hay.*

297.—*Hemichelidon latirostris*, *Raffles.*

514.—*Cyanecula cærulecula*, *Pal.*

539.—*Cisticola schænicola*, *Bp.*

555.—*Phyllopseuste fuscata*, *Blyth.*

593 *ter.*—*Budytes cinereocapilla*, *Savi.*

595.—*Limonidromus indieus*, *Gm.*

599.—*Corydalla Richardi*, *Vieill.*

720.—*Citrinella pusilla*, *Pal.*

723.—*Euspiza aureola*, *Pal.*

858 *bis.*—*Esacus magnirostris*, *Geoff. de St. Hel.*

904.—*Gallicrex cristatus*, *Lath.*

907.—*Gallinula phœnicura*, *Penn.*

910.—*Ortygometra pygmæa*, *Naum.*

929.—*Bubulcus coromandus*, *Bodd.*

931.—*Ardetta cinnamonea*, *Gm.*

936 *bis.*—*Goisakius melanolophus*, *Raffl.*

951.—*Nettapus coromandelicus*, *Lin.*

952.—*Dendrocygna arcuata*, *Cuv.*

Deducting, therefore, doubtful species, and species which though introduced, have entirely died out, the total number of species as yet ascertained to occur in the Andaman and Nicobar groups, only amounts to 175.

Of *Brachypodius fuscoflavescens* and *Ninox obscurus*, numerous other specimens have been obtained, and no doubts as to the validity of these species exist. *Carpophaga palumboides*, has, Mr. DeRoepstorff assures me, been already described by Prof. Reinwardt of Copenhagen, under some other name, but by what name or when, or where, he cannot remember.

Ardetta pulchra, I have now satisfied myself, by comparison with a large series, is nothing but a freshly moulted and most unusually brightly coloured *A. Sinensis*. *Spilornis Davisoni* appears to be a good species.

AMONGST A COLLECTION of birds recently sent me by my kind friend Mr. F. R. Blewitt, I was surprised to find no less

than nine specimens of *Mergus castor*, the merganser, which he had shot in the Mahanuddee, in the Sumbhulpoor district of the Central Provinces. Years ago, Col. Tickell procured a single specimen at Chyebassa, but with this exception the merganser has never hitherto been observed many miles out of the Himalayas, or in any but rivers running through these mountains.

Letters to the Editor.

DEAR SIR,

DR. JERDON'S description of the pintailed snipe (*Galinago stenura*) is hardly accurate as far as my experience goes. He gives the following characteristics to distinguish it from the common snipe :

- I.—Of slightly smaller size than the common snipe.
- II.—Richly barred lower wing coverts.
- III.—Shorter beak.
- IV.—Tarsus and feet slightly shorter.
- V.—Lateral tail feathers narrow, rigid, and pointed.

The pintailed snipe is a rare* bird, and I think not so often passed over as Dr. Jerdon supposed. I have looked carefully through several large bags of snipe, and failed to get a specimen, till the other day one was sent to me from Jhausi, by Mr. J. V. Sturt, Assistant Commissioner. Mr. Sturt, who is a keen and observant sportsman, but not exactly a naturalist, distinguished the bird by its *habits* before killing it, as well as by its appearance afterwards. He sent the following note with it :

Length, $11\frac{1}{2}$ inches; expanse, 17; beak, $2\frac{1}{2}$; tail, $2\frac{1}{4}$; weight, $10\frac{1}{2}$ tolahs.

“It rises with a sharp loud cry unlike the ordinary snipe, and its flight is heavier. Found in green grass, under a grove of trees, on the margin of the lake. Shot on 1st February, 1873, at the Intara Lake, 16 miles out of Mhow Rainpoor, on the Tehree road.”

It is *larger*, not smaller, than the common snipe, measuring

* *G. stenura* is only rare in Northern and Western India. In Central India they occur rather more commonly than *scolopacinus*; in Southern India, *e. g.*, on the Nilghiris, the former only as a rule occurs. In Ceylon, *stenura* is the common snipe, and so it is in the Andamans and in Burmah, and I have seen many specimens from Eastern Bengal and Assam. In fact, *stenura* is the Palearctic and *scolopacinus* the Palaearctic form.—ED., STRAY FEATHERS.

5·4 inches in the wing against from 4·8 inches to 5·3 inches in the latter.

The lower wing coverts are richly barred, but not more so than in several specimens, I have, of the common snipe.

The bill is shorter than in one specimen by me of the common snipe, but as long as the others, and is slightly deeper at the base.

The tarsus and feet are shorter than those of one specimen, and as long, or longer than those of the others.

None of the above characteristics will hold good as points of separation, and the only tangible difference is in the tail.

In the common snipe, the tail consists of fourteen feathers, soft, and of equal width. The outer pair are longer than the next pair, and in some cases as long as the centre pair.

In the pintailed snipe, the tail consists of twenty-two feathers, of which the six outermost pairs are shorter than the rest of the tail and very narrow, rigid, and pointed.

As I have never yet seen any description of the habits of the pintailed snipe in point, I am in hopes that this may prove interesting to some of your readers.—G. F. L. MARSHALL.

SIR,

PERHAPS a short account of a nest of *Gallinula phœnicura* which I found in September, 1868, in Bombay, may be of some use to you. I am not aware if much is known about the breeding of this bird; all the information we get from Dr. Jerdon, is comprised in the following sentence:

“Theobald found the nest in a jheel, made of weeds, containing seven eggs, of a brownish cream colour, spotted and blotched with brownish red.”

In 1868 I was living in a house surrounded by very low-lying fields, which were under water nearly all the monsoon, and of course became the resort of various water birds. Among them this year were half a dozen of this *Gallinula*, which very soon made their presence known by their awful cries. I cannot understand Dr. Jerdon dismissing the cry of this bird, if he ever heard it during the breeding season, with the words “has a loud call.” Anything more unearthly proceeding from the throat of a bird I never heard. It began with loud harsh roars which might have been elicited from a bear by roasting it slowly over a large fire, then suddenly changed to a clear note repeated like the coo of a dove. Often in the morning two or three of the birds might be seen in some little open space fighting like young cock chickens.

When flushed, they seldom flew far, seeming to trust more to their legs than their wings. After a time the cries ceased and the birds were rarely seen, so I concluded they must have their nests now, and set myself to find them. Day after day I waded through the dirty water and long grass (in which I had myself caught gigantic water-bugs, nearly three inches long, and other horrible creatures innumerable) searching every accessible bush and likely place along the edges of the fields, but all in vain. The birds were there, for I often flushed them, but for a long time all my efforts to find the nest were utterly baffled.

It little occurred to me that while I was poking among bushes and grass where orthodox birds of that class ought to breed, my water-hen might be sitting over my head looking down at me. One morning, however, a Native cultivator, whom I had told to search also, happened to see the bird going up a middle sized date palm that stood out of the water, in the top of which there seemed to be an old crow's nest. He was soon up too, and after clearing away a good deal of rubbish, he took down the nest and brought it to me, in triumph. The nest was rather flat, but might have been an old crow's; it contained four eggs of a brownish white colour, not very thickly covered with spots of three colours—light brown, dark rusty brown, and pale purplish blue. They were rather larger than a crow's. I was sorry to find, however, that they were very nearly hatched; the whole four were cracked, and I could hear the chicks chirping distinctly inside. So I made the man go up again and fix the nest securely in its place, and soon had the satisfaction of seeing the old bird making its way up to it, not flying, but running up the rough bark of the date like a ladder. A day or two after, the nest was empty, and at the bottom of the tree I found a fragment of an egg, which I have before me now. I was anxious to know how the bird would get its young ones down, but I failed to catch it in the act.—E. H. AITKEN.

SIR,

HAVING lately obtained a fine specimen of *Indicator xanthonotus*, the following brief notice may prove acceptable to Indian Ornithologists.

While making reparations for the start of our party from Murree, I took the opportunity of examining the intricate geological section along the Abbotabad road.

On the forenoon of the 4th July approaching Dungagally* within about a quarter of a mile, I noticed a bird emerging from an oak tree (standing at the edge of the road), and after a short heavy flight, perch in a tree a short distance off. The flight of the bird was that of a *Megalæma*, and having only a short time ago seen Mandelli's specimen of *Indicator*,† it did not take me long to recognize the strange customer gazing at me. Several minutes passed away, until my servant appeared with the gun; but as the creature had not yet satisfied his curiosity, he paid dearly for it.

The specimen is a male in full plumage. It almost perfectly agrees with the one described by Mr. Hume at page 314 (*vide ante*), except that there is a strong tinge of yellowish green on the top of the head, the whole neck, and upper back, at the margins of the tertials, and of all the wing coverts, as well as on the throat, and front of the breast. The *middle of the back* is pure *sulphur yellow*, but the lower back and rump, extending along the middle of the upper tail coverts, is silky orange.

The eye is small, the iris dark brown, the naked space round the eye, a very pale green. Bill yellow, somewhat dusky towards the tip. At the base of both the upper and lower mandibles, as well as on the chin, there are black bristles, but none exist above the nostrils, which are large, triangular, and swollen. Feet, pale greenish horny. The total length is a little above 6 inches; the wing, 4; bill, at front, 0·31; from gape, half an inch. The tongue is very like that of a *Megalæma*, on a small scale, depressedly lanceolate, posteriorly, arrow-shaped, provided in the fork with some short denticles; it is not extensible, thus differing entirely from that of a wood-pecker. The stomach had a tolerably thick muscular coat. It contained six specimens of a predatory wasp, which is very commonly seen about low bushes, and a small quantity of green vegetable matter. No cæca were observed.

The sternum is in general form almost identical with that of *Indicator minor*, figured by Selater in the "Ibis" for 1870, p. 178, except that the two posterior processes are not united at the end, remaining separate as in *Megalæma*, and other *Capitonidæ*. Further, the keel is moderately elevated in front, but after a short distance rapidly diminishes in height, and becomes almost obsolete before it reaches the end of the sternum. The clavicle on the other hand, although very thin, is ossified up to very near the front edge of the keel, at any rate slightly more so than in *Megalæma virens*.

* 18 miles North by East from Murree.

† Comp. "Stray Feathers," vol. I., p. 373.

Judging from this brief anatomical account, there can, I think, be no doubt that our species has very little in common with either the CUCULIDÆ, or the PICIDÆ, but that its natural allies are in the CAPITONIDÆ, an opinion which was some years ago fairly and satisfactorily proved by Mr. Selater ("Ibis," 1870, p. 176), supported by Mr. W. T. Blanford (in his work on Abyssinia) and to which opinion also Mr. Hume lately (ante, p. 315) inclined, when examining specimens of the present species. I cannot say whether any of the foreign *Indicatorinæ* can justify an intermediate position of this family between the PICIDÆ, and CAPITONIDÆ. Looking at *I. xanthonotus*, we are only reminded of a wood-pecker by the proportionate length of the primaries, and by the shortness of the outer tail feathers. With *Megalæma virens* for instance, even the external resemblance is much greater; the yellow bill provided with stiff bristles at the base, the naked space round the eye, and the greenish feet with the tarsi broadly shielded in front. The flight and habits as already noticed, also much resembles that of a *Megalæma*.

Although the name 'honey guide' seems anything but appropriate for our Indian species, it is doubtful whether this last can be generically separated from its African allies.

I did not hear it uttering any call.

F. STOLICZKA,

Naturalist to the Yarkand Mission.

Murree.

STRAY FEATHERS.

Vol. I.]

DECEMBER, 1873.

[No. 6.]

Notes on some Ceylonese Birds.

I HOPE during the course of next year, in accordance with the general scheme of this periodical, to publish a complete list of the Birds of Ceylon, together with full descriptions and measurements of all species not included in Dr. Jerdon's "Birds of India."

In the mean time, I think, it may be useful to put on record a few notes written in the course of an examination I have just made of a large number of Ceylon specimens, some presented to my museum by Vincent Legge, Esq., R. A., and G. Nevil, Esq., C. S., and some purchased for me by the latter gentleman, and other friends.

62.—*Phodilus badius*, Horsf.

This species must now be added to the Avifauna of Ceylon, Mr. Nevil, C. S., having sent me a specimen killed in the island, the only one I believe as yet obtained there. The Ceylon bird differs from the Nepal race, (which Mr. Gray has separated as "*nipalensis*,") in its somewhat smaller size; in the much closer and darker banding of the lower surface of the quills; in the dark brown patch on the wing lining, at the base of the first two or three primaries (this patch being bright chestnut in the Nepal bird); in the dark brownish tint of the lesser wing coverts along the ulna and of the whole crown; in the conspicuous black banding, (almost obsolete in *nipalensis*) of the outer webs of the quills; in the much closer banding of the tail, and in the darker tint of the back and especially of the lower part of it.

In fact the bird seems referable rather to the Malayan than the Himalayan race.

63.—*Syrnium indranee*, Sykes.

I very much doubt whether the Ceylonese bird is *Syrnium indranee*; but if it be so there can be no question as to the distinctness of this species and *newarense*. I have never yet succeeded in obtaining either a Malabar or Nilghiri specimen of this

bird, and therefore I confine my remarks to that from Ceylon. Of the Himalayan species I have very numerous specimens from all parts of the Himalayas, from Darjeeling to Murree. All are one and the same species, identical in every respect, though individuals differ considerably in size, and in the tone of coloring above and below. In every one of these the disc of the eye is precisely similarly colored; I have thirteen specimens before me now, and have carefully examined at least double that number, and I therefore speak with great confidence on this point.

The whole of the central portion of the eye disc is black or nearly so, as are also the shafts and central portions of the long, bristle-like, anti-ocular feathers; the lateral portions of these, especially towards their bases, being greyish. From near the base of the bill a broad, pure white, band extends over the eye as far as the posterior angle; beyond this, outside the blackish central ring, the eye disc, behind and under the eye, to the gape, is a pale, fulvous brown, narrowly and obsoletely barred with darker brown. I am very particular about this, because anything more absolutely and utterly unlike the natural bird than Fig. XIV., G. & M. Gen. of Birds, of *Syrnium newarense*, Hodg., so far as the eye discs are concerned, it is absolutely impossible to conceive. What the artist was thinking of I cannot guess, the picture fails to convey the faintest idea of what the eye disc is really like.

When we turn to the Ceylon bird, it is not merely that the bird is much smaller, (a fine male before me having the wing barely 12 inches); that the ground color of the under-surface, and specially of the tibial and tarsal plumes, is more rufous; that the whole upper surface, but specially the head and nape are paler and of a more rufescent olive brown, and that the scapulars, tertiaries, and coverts are much more banded; but the eye disc differs *toto cælo*. The anti-ocular bristles are not half the length, the dark ring immediately round the eye is not half so broad, the white eye-brow does not extend so far back, and is tinged with fulvous, while the whole of the rest of the outside of the eye disc from the termination of the white eye-brow, a little behind the centre of the upper margin of the eye, right round to where, near the gape, it meets the anti-ocular bristles, is a *rich ochraceous buff*, utterly unspotted and unbarred.

No one who has ever seen the two birds could possibly mistake them for one moment.

The question arises can this bird be Sykes' *indraneë*? Could he possibly have overlooked this most conspicuous, rich, ochraceous crescent? It is the very first feature in the bird's plumage that would strike the most careless observer, and yet there is no allusion

to it in Jerdon's description which, if I understood him correctly, he transcribed nearly verbatim from Sykes.

I have therefore great doubts whether the Ceylon bird is really *indranee*, and if it proves distinct, it should stand as *ochrogenys*, nobis.

71.—*Huhua nipalensis*, Hodg.

Mr. Holdsworth, in his Catalogue of the Birds of Ceylon, P. Z. S., 1872, p. 416, separates the Ceylon bird as *Huhua pectoralis*, Jerdon. Whether *pectoralis*, Jerd., be, or be not, a good species, I cannot yet positively affirm, because I have hitherto failed to procure a Nilghiri or Malabar specimen; but the Ceylon bird of which I have a very fine specimen now before me is no more distinct from *Huhua nipalensis* than *Ketupa ceylonensis* of Ceylon is distinct from that of Northern India.

Huhua nipalensis is a rare bird, I believe, in European collections; but I have carefully examined some ten specimens, five of which are now in my collection, and I find that even as regards size there is no such marked difference between the Ceylonese and Nepalese birds. In two males before me from Nepal, the wings vary from 16 to 16·5 inches, in the females, from 17·5 to 18·5 inches; in a supposed male from Ceylon, the wing is 16·75 inches.

As regards plumage, the bird is one that varies very greatly; if there is a difference, the Nepalese birds are rather darker; as for the so-called pectoral band, which merely depends upon the breadth of the subterminal bars on the breast feathers, this apparently depends upon age, and I have a Nepalese bird in which the so-called pectoral band is a great deal more marked than in the very fine Ceylon specimen before me, while I have another Nepalese bird, a young male I believe, in which there is scarcely a trace of this band. The Ceylon bird may, I think, be with perfect safety referred to *nipalensis*, and this being the fact I think it extremely doubtful whether the Malabar and Nilghiri birds will prove distinct.

72.—*Ketupa ceylonensis*, Gmel.

There is a great deal more difference, there seems to me, between Ceylonese and Himalayan examples of this species than between those of the last species from the same localities. As far as I can judge, the Ceylon birds do certainly average somewhat smaller and darker, and have far less white on the throat than Northern Indian birds; birds from the extreme south of the Peninsula as from Anjango are very close to the Ceylon bird; all however clearly, according to my view, belong to the same species.

75 ter.—Ephialtes bakhamuna, Forst.

Three specimens, a male, female, and young, enable me to decide positively that this is precisely identical with Jerdon's *griseus*, of which I have no less than 51 specimens from different parts of India.

It is entirely distinct from *lempigi*, which I have from Burmah, Malacca, and Malayana, from *malabaricus*, which I have also from the Nilghiris and even from as far East as Calcutta, and from *lettia*, of which also I have an enormous series from various parts of the Himalayas. I need scarcely add, that it is still more conspicuously distinct from *pennatus*, *spilocephalus*, *Brucei* and *plumipes*.

105 bis.—Batrachostomus punctatus, Sp. Nov.

I have separately noticed, *vide infra*, that a *Batrachostomus* which would certainly not appear to be *moniliger* occurs in Ceylon. I have provisionally named it as above, but possessing only a single specimen of the Ceylon form and very few specimens of the family from else where to compare it with, I feel no certainty about it, and only desire to draw the attention of ornithologists in Ceylon prominently to it.

111.—Caprimulgus spilocircus, Gray.

Ceylon specimens do not agree over well with Nilghiri ones, and I am not at all sure that the latter will not require to be re-named.

112.—Caprimulgus asiaticus, Lath.

Mr. Holdsworth says, that it is not unreasonable to conclude that *atripeunis*, Jerd., was the bird referred to by Layard as abundant in the vicinity of Columbo; but I think it is quite certain that he was confusing *mahrattensis* and *asiaticus*; indeed the general appearance of the birds is not dissimilar, and I have repeatedly had specimens of *asiaticus* sent me as *mahrattensis* and *vice versa*, by persons who had at other times sent me the birds correctly named.

Mahrattensis, I may add is *not*, in India, at all a rare bird. I am sure I have seen a hundred specimens and I have a large series in my museum.

115.—Harpactes fasciatus, Gmel.

I think ornithologists in Ceylon should compare their specimens of this supposed species with a good series of specimens from the Wynaad and Malabar Coast. The specimens sent me from Ceylon are so vile that I cannot be certain about it, but

they appear to be smaller birds, and exhibit a peculiar coloration of the tail which does not correspond with that of any of my Indian specimens, namely instead of the central tail feathers being entirely chestnut with moderately broad black tips, and the next pair entirely black, they have all the four central tail feathers black on the inner webs and on the outer webs for about one inch, the rest of the outer webs being chestnut. I do not lay much stress upon this, for the tails in these birds are very variable; but still the thing wants looking to.

147.—*Palæornis eupatrius*, Linn.

Lord Walden recently remarked of two specimens of a parrot which he referred to this species, from the Andamans, that they did not differ from Ceylon, Burmese, and Indian examples. I shall deal more particularly with this question hereafter, but I wish to say at once, that I am entirely unable to concur in this view, and that in my opinion the Ceylon bird is specifically distinct from the Northern Indian bird, the Burmese bird, and the Andaman birds; and that if a collection of sixty or seventy of the males from all these different localities were intermingled, no one to whom their differences had once been pointed out could hesitate a moment in assigning to each its proper locality. Lord Walden was only I think referring to females, or I feel sure he would, had he compared the males, have detected the marked differences that exist between the three species above indicated.

149.—*Palæornis purpureus*, Müll.

I specially notice this with reference to Mr. Holdsworth's remarks that there is another closely allied form with *yellow* under wing coverts which has probably been confounded with it. What species is this? I only know of two, the present which extends all through Southern India, and Northern India, West, at any rate of a line drawn from Calcutta to Kumaon, and the other *bengalensis*, which occurs in Nepal, Eastern Bengal, Assam, and Burmah; the one has the lower wing coverts *green*, the other *verditer blue*. I have never yet met with a specimen, barring *lutinos*, with yellow under wing coverts.

164 *bis*.—*Yungipicus gymnophthalmos*, Blyth.

Ceylon specimens are absolutely identical with specimens from the Malabar Coast. They are perhaps a trifle smaller than *Hardwickii*, the wings in this present species averaging about 2.9 in the males, against 3 in the same sex in *Hardwickii*; barring this, the only *constant* difference appears to consist in the much darker occiput and nape. Doubtless, in typical ex-

amples of *gymnophthalmos*, the *whole* head and back are darker, but many specimens from quite the South of India, Anjango for instance, positively differ from some specimens of *Hardwickii* from Northern India *only* in the much darker occiput and nape.

179.—*Micropternus gularis*, Jerd.

Mr. Holdsworth says, Ceylon specimens have the lower parts rather darker than those from India. I do not know whether this is an original observation, but Blyth stated it also long ago. I can only say *I* can't see it, and will undertake to shew Indian specimens as dark as any Ceylon ones.

240.—*Piprisoma agile*, Tick.

Ceylon specimens perhaps differ slightly from Continental Indian ones; but an examination of a very large series of Ceylon specimens would be necessary to enable me to pronounce authoritatively on the subject. At present it seems to me that the Ceylon birds have a very much more decided green cast on the upper surface, especially on the rump and upper tail coverts; that they are slightly smaller, and that the bills are a little shorter and somewhat markedly less compressed towards the points.

261 *ter.*—*Lanius lucioniensis* ? Lath.

I have a single indifferent specimen of a shrike from Ceylon which certainly is not *cristatus*, and which is very close if not identical with *lucioniensis*, of which I have very numerous specimens from the Andamans and Nicobars and China. It is certainly not the Malayan *superciliosus*, as figured by LeValliant, but I cannot refer to Latham's original description, and I have an idea that he described a much greyer and less rufous bird than LeValliant figures. This, and not *cristatus*, is doubtless the bird referred to by Layard as *superciliosus*, anyhow, a second species of shrike must be added to the Ceylon list, *cristatus* of course occurs there also, but this is an adult bird, with the grey brown head and back, and pale forehead of *lucioniensis*, and either belongs to that species, or to a very closely allied one, not yet discriminated.

265 *bis.*—*Tephrodornis affinis*, Blyth.

I do not quite understand the principle upon which Mr. Holdsworth admits *Oriolus ceylonensis* as a distinct species, but refuses this rank to the present bird. If one compares specimens from Ceylon and say Dacca, no two nearly allied forms could be more easily separable. In the Dacca bird the upper surface is a darkish earth-brown, there is an enormous, yellowish-

white supercilium extending to the nape; the lores, cheeks, and ear coverts are blackish brown, in some specimens almost black; in the Ceylon bird the upper surface is a grey brown, there is barely a trace of a supercilium, and the lores, cheeks, and ear coverts are almost concolorous with the nape. If we come further west and south, and take birds from say Dehra, Agra, Sambhur, Kutch, and Sindh, and again from Saugor and Raipoor, throughout which vast tract the same type prevails, we have birds similar to those from Dacca, and with equally large supercilia, but with a light upper surface and a lighter cheek and ear patch; still the brown of the upper surface is earth-brown without the least tendency to grey, and the contrast between the ear coverts and the color of the upper surface equally strongly marked. If we go further south, the supercilium shrinks, the cheek and ear patch becomes more nearly concolorous with the nape, and the upper surface gets a tinge of grey, and down in the extreme south, as at Anjango, birds may be met with exactly similar to the Ceylon birds except that they are not quite so grey. I myself should be quite inclined to disallow *affinis* as a distinct species, but any one who retains *Oriolus ceylonensis*, must also, it appears to me, necessarily retain *T. affinis*.

267.—*Hemipus picatus*, Sykes.

This species extends not merely to Southern India as Mr. Holdsworth supposes, but to the Himalayas also. MacClelland, I think it was, first set people wrong by describing the brown, backed birds, which are merely the females, as a distinct species, *capitalis*, and Blyth perpetuated the error in the *Ibis* for 1866. I have males and females from various places in Southern India, as well as numbers from the Himalayas, and the same sexes from all localities are precisely identical.

270 bis.—*Grauculus Layardi*, Blyth.

Whether this should be considered a distinct species or not is purely a matter of taste. The Ceylon birds do average smaller, with wings from 5.5 to 6, whilst Northern Indian birds may be found, with wings running up to 7 or even more; but every size of wing between 5.5 and 7 will be met with in a large series. As for the barring or non-barring of the under wing coverts, the presence or absence of abdominal bars, the amount of white tipping to the tail and the darkness or lightness of the shade of the upper plumage, I cannot discover that any constant difference exists when series and not individual birds, obtained in different parts of the country are compared. These differences are, it ap-

pears to me, individual, dependant on age, sex, and season, and not in any way local.

281 *bis*.—*Buchanga leucopygialis*, *Blyth*.

This is a very distinct species : it differs not merely as Mr. Holdsworth says from *cærulescens* in having less white about the abdominal region and in its smaller size, but the whole upper plumage is of a different tint, being of a somewhat *blackish* blue instead of the very *grey* blue that characterises the Indian form. Individuals of each may be picked out which do not differ so very strikingly, but with a large series of both, the difference is conspicuous, especially in the males, which in the Ceylon birds seem always to be the darkest, a difference that I have failed to trace in the Continental species.

283 *quat*.—*Dissemurus lophorhinus*, *Vieill*.

Fine specimens of this species greatly exceed the dimensions given by Blyth, *Ibis*, 1867, p. 305 ; the wing extends to at least 5·75 inch ; the bill from gape to 1·55 ; and from nostrils to point to 1 ; while the exterior tail feathers in some specimens extend 2·5 inch beyond the centre ones. The whole length of a fine bird can scarcely be less than 14 inch.

292.—*Leucocirca aureola*, *Less*.

To judge from the only two Ceylon specimens sent me, and which I have compared with birds from various parts of India, the Ceylon bird is smaller, is decidedly darker on the nape, and upper back, and has a considerably longer bill than any of the Continental races.

297.—*Alseonax latirostris*, *Raffles*.

Specimens from Ceylon, Southern and Northern India, the Himalayas, and the Andamans are all precisely identical ; but Mr. Holdsworth gives us also *Alseonax terricolor*, Hodgson. Can any body tell me what bird this is, as distinct from Raffle's bird, because I have not been able to make out the distinction, and as at present advised, believe that the two are identical, in which case of course the bird must stand under Raffles' name.

306.—*Cyornis Tickellæ*, *Blyth*.

The Ceylon blue red-breast must, I think, stand under this name. I have numerous specimens from all parts of the country. From Kumaon to Ceylon and, as far as I can make out, there is only one species of which the young males and females represent *Tickellæ* and the old males *Jerdoni*.

372 *quat.*—**Oreocincla imbricata?** Layard,
O. Gregoriana, Nevil, *Sp. Nov.*?

I dare say *O. nilghiriensis* does occur in Ceylon, but for all that Dr. Jerdon, Mr. Holdsworth, and others say to the contrary, I cannot help thinking that in Mr. Nevil's new species, of which he has kindly favored me with a specimen, we have the true *imbricata* of Layard. Anyhow, this present species is quite distinct from *nilghiriensis*; it has a shorter and stouter bill, from gape, 1.35; from forehead to point, 0.95, against 1.5 and 1.15 respectively in *nilghiriensis*. The Ceylon bird is altogether a darker, richer, and more rufous colored bird than that from the Nilghiris. The head is almost black, so close and broad are the bars. The buff tippings to the coverts are broader and much more rufescent; on the under surface the whole ground color is a rich rufous buff, instead of being white as in *nilghiriensis* only slightly tinged with buff about the collar.

It might be supposed that this Ceylon bird was only the young of *nilghiriensis*; but in the first place, the bills differ totally, it is not merely that the bill is shorter in the Ceylon bird, but it is higher and broader; in the second place, setting aside the specimens in my own collection, my friend, Mr. Davison, has examined hundreds of the Nilghiri birds of all ages from nestlings upwards, and assures me that that he has never seen a specimen at all colored like the Ceylon bird. Under these circumstances either this bird is *imbricata*, Layard, or it must stand under my friend Mr. Nevil's name.

404 *bis.*—**Pomatorhinus melanurus**, Blyth.

This may be readily admitted to be a distinct species, but Mr. Blyth remarks *Ibis*, 1867, p. 301, "the black of the tail affords the readiest distinction." I cannot say that I have ever seen a specimen in which the color of the tail in any way justified the name. The tail appears to be always a moderately dark hair brown, more or less suffused with rufescent olive to towards the base.

544 *bis.*—**Drymoipus Jerdoni**, Blyth.

Mr. Holdsworth says, that "the common Ceylon species, of which I have obtained specimens close to Columbo, agrees perfectly with *D. Jerdoni*, Blyth, in the British Museum, where there is a specimen named and sent by Dr. Jerdon himself. In the 'Birds of India' Vol ii., p 180, Jerdon mentions that Blyth described this species from specimens he sent him from Southern India; but he afterwards absorbed it into *D. longicaudatus* in the belief that the specimen he described was in imperfect plumage.

Jerdon further says, "It appears to me very similar to some Ceylon birds which Mr. Blyth doubtfully considered identical with *D. inornatus*."

"My Ceylon birds are greyish brown on the upper surface, rather paler on the head, cheeks, and neck; lores pale, and much less conspicuous than in *D. inornatus*; under surface, pale fulvous, and flanks rather dusky; the upper surface of the tail feathers distinctly striated, the striæ shewing as faint narrow bars on the under surface, which has a narrow dark subterminal band, generally darker in the centre, and giving the appearance of a spot. In fresh specimens the bill is dusky above, fleshy below, irides pale yellow; feet, flesh colour.

"Length, 5.5 inches; wing, 2.3; tail, 2.5; tarsus, 0.8; bill at front, 0.4."

I quote this especially, because I think there is no doubt that this is quite correct, and that this Ceylon bird which is precisely similar to what Dr. Jerdon shewed me as *Jerdoni*, is the true *Jerdoni*, and altogether distinct from *D. rufescens*, nobis, with which Dr. Stoliczka and others identify *Jerdoni*.

Rufescens was described, *Ibis*, 1872, p. 110, the whole upper surface is a rich rufous brown, the length is 7 inches, the wing 2.62 inch to 2.75; the tarsus, nearly one inch, and the bill at front fully 0.5. I do not see how any one can doubt that this is entirely distinct from the true *Jerdoni*, from Ceylon and Southern India, correctly described above by Mr. Holdsworth.

445.—*Hypsipetes nilghiriensis*, *Jerd.*

Ceylon birds are entirely identical with Nilghiri ones, except that taking a number together, the Ceylon birds do seem to average a longer bill. It is by no means *certain*, as yet, that *ganeesa*, Sykes, is identical with this species, and the Ceylon birds should therefore, I think, be retained at present under the name above given.

467.—*Ægithina zeylonica*, *Gmel.*

I am not now going to enter into the Iora controversy which I shall deal with hereafter, but I wish to note two facts, *viz.*, *first*, that out of eighty-five specimens from all parts of India in all stages of plumage, I have no specimen agreeing perfectly with one of the Ceylon male *Ægithinæ*s, and *secondly*, that I recently had a pair of these birds, male and female, sent from the Teriate Hills in Wynaad by Mr. J. L. Darling, Jr., who shot them off the nest, which together with the eggs he also kindly sent me, in which the back of the male was, as it should be, in *typhia*, green and not black at all, whereas the latter species has never been sup-

posed to extend to Southern India; while I received a perfectly black backed male from Mr. Oates, from Thayetmyo, where *typhia* only should occur.

473.—*Oriolus ceylonensis*, Bonap.

There is no doubt that typical *ceylonensis* from Ceylon are very different, from typical *melanocephalus* from Calcutta. The former are much smaller birds, with the wing, in the male, averaging about 4·9, against 5·4 in the Calcutta birds. There is not nearly so much yellow on the primaries and tertiaries, and the black does not extend nearly so far down the breast as in *melanocephalus*; but when you come to compare an extended series from all parts of India, it becomes exceedingly difficult to draw the line between the two species, and not only this but even from Northern India you will find specimens which, except as regards size, correspond exactly with some Ceylon birds, and of a vast number of Southern Indian birds it is impossible to decide whether they should be classed as *ceylonensis* or *melanocephalus*. Alike in size and in other supposed distinctive characters, they are exactly intermediate between typical examples of the two forms. In cases where an unbroken series of connecting links exist between two forms, I cannot but doubt the propriety of separating these two as distinct species.

543.—*Drymoipus inornatus*, Sykes.

Ceylon birds are identical in color with typical Southern Indian birds of the above species; they are however sex for sex somewhat smaller, and appear to have slightly more slender bills. They are of course like the Southern Indian birds quite distinct from the grey Northern Indian bird, *terricolor*, nobis, so long confounded with Sykes' bird, and which in Lahore to Yarkand I erroneously figured as *inornatus*.

539.—*Cisticola schoenicola*, Bonap.

One specimen received from Mr. Nevil is absolutely identical with some of my innumerable Indian specimens, and is certainly not larger than many of them. This bird is somewhat variable both in size and color, not according to locality as far as I can make out, but according to individuals. I have Indian specimens that would answer very well to Blyth's diagnosis of *homalura*, and I have no doubt that Mr. Holdsworth is right in considering this latter as one and the same with *schoenicola*.

556.—*Phyllopseuste magnirostris*, Blyth.

This species must be added to Mr. Holdsworth's printed list; he has already added it in manuscript to the copy which he

kindly sent me. I have compared two specimens sent to me by Mr. Legge with specimens from other parts of India and they are absolutely identical.

684.—*Acridotheres tristis*, *Lin.*

There is a popular tradition dating from Mr. Blyth's time, which Mr. Holdsworth reproduces, that Ceylon specimens of this species are *much darker* than those obtained in India. I confess I can't see it, and I venture to prophecy that if any one will put together a *sufficient* number of specimens, he will agree with me that there is not a pin to choose between them.

843.—*Glareola lactea*, *Tem.*

Must be added to Mr. Holdsworth's list of the Ceylonese birds; a young specimen has been sent me by Mr. V. Legge who obtained it on the S. E. Coast of Ceylon.

912.—*Porzana ceylonica*, *Gm.*

Blyth's species *amauroptera* will not stand. I have two birds now before me. A male from Cawnpore, and a male from Ceylon, absolutely identical, and answering exactly to Dr. Jerdon's description of which Mr. Blyth, *Ibis*, 1867, p. 310 says, "a Ceylon specimen is described by Dr. Jerdon." On the other hand I have a female from Ceylon corresponding exactly with Blyth's *amauroptera*. My specimens both from Northern India, and Ceylon are exceptionally good and perfect, and there is no possible doubt of the identity of the birds from both localities.

992 *bis.*—*Onychoprion fuliginosa*, *Gmel.*

This is another species not included in Mr. Holdsworth's list of which I have received a specimen shot at Boralasgama, Western Province of Ceylon, by Mr. Vincent Legge.

I do not know why Dr. Jerdon omitted this species from the birds of India. It is not uncommon in the Indian Ocean, right up to the west coast of the peninsular, and northwards, though I failed to procure it there, to the Mekran Coast. I saw one shot near Panwell, in the Bombay Harbour, two others near the coast off Teetul between Surat and Bombay, and another from Minicoy.

A fine male measured nearly 17 inches in length, but younger birds with tails and bills less developed do not exceed 14·75; wing, 11; a young bird only 9·6; tail, from vent, 7·1; a young bird only 5·5; bill, at front, 1·7; a young bird, 1·5, from gape, 2·2; a young bird, 2; tarsus, 0·92, in a young bird, 0·8; mid-toe and claw, 1·2; in a young bird, 1·05. The mid-toe claw is much curved, the inner edge conspicuously dilated. The bill is black.

The irides deep brown, almost black. Legs and feet, black or brownish black.

In the adult, the forehead and a short broad line above the eyes, running backwards as far as the top of the eyes, the chin, cheeks, throat, neck all round and entire lower parts including axillaries, wing lining, and lower tail coverts, white. In some specimens the axillaries, lower breast, and abdomen, the throat, sides, and back of the neck, faintly tinged ashly. A line through the lores to the eyes, crown, occiput, ear coverts, and nape, velvet black; the back and rest of the upper plumage dark dusky brown; the outer webs of some of the earlier primaries, and of their greater coverts faintly tinged greyish. The shafts of the quills blackish brown above, white below. The edge of the wing white. The external tail feathers greyish white, except on the terminal third which, sometimes on one, sometimes on both webs, is more or less unicolorous with the rest of the tail.

The bird of the year is smaller and everywhere of a dull sooty grey or smoky black. The feathers of the wings, scapulars, and back, with broad dingy white tippings and margins.

996.—*Phæton æthereus*, *Lin.*

I am pretty confident that it was this species with the red bill and the white tail which Mr. Holdsworth identifies with *rubri-cauda*, Bodd. The former is the only species which I have known to be procured anywhere along the West Coast of India, or in the Persian Gulf.

A. O. H.

Acheen.

So little is known either of Acheen or its birds, that even the following rough notes that we can string together about both the place and its feathered residents, may, at the present time, (when the Dutch are endeavouring to crush its brave and independent, albeit somewhat lawless, people,) possess a certain interest.

How my friend Mr. Davison came to visit Acheen, and how I thus obtained a small collection of birds killed there, must first be explained.

At Camorta, in the Nicobars, we have a small Penal Settlement, an offshoot of Port Blair, in the Andamans. The head Jemadar of the convicts at Camorta, one Khoda Buksh by name, a fine athletic Punjabee (transported for life, doubtless for chop-

ping off some neighbour's head, in the playful way our N. W. Frontier subjects have) had long been one of the most trusted of the convict warders. Somehow he failed to give satisfaction to the Assistant Superintendent then in charge of Camorta, and he took it into his head that the latter had reported him to the "General" at Port Blair for reduction. The man was one born to be a leader amongst his fellows; he had too long virtually ruled the two hundred odd convicts at the station to contemplate his degradation with equanimity, and he appears to have at once made up his mind to escape. He was in immediate charge of the best boat in the harbour, and he always prided himself on having it in tip-top order. Directly he conceived that he was in disgrace, he went to an English sailor, in charge of the Hulk at Camorta where the prisoners at one time resided, (the old *Blenheim* that many of us remember as one of Green's finest passenger ships) and said to him "my boat is very nice, but I wish you would examine it and see if there is anything you could suggest to make it a better sea-boat, sail faster, &c." The sailor, a very smart young fellow, made many suggestions, all of which Khoda Buksh, who had become an experienced shipwright amongst other things during his many years confinement, carefully carried out. This done he took the "Captain of the Hulk" for a little sail with him and the latter pronounced that the boat was now beyond further improvement.

A certain number of his own crew were Mahomedans like himself whom he knew and trusted, but the majority of them he felt would not join. So, at one in the morning, taking only the four men he could rely on, he roused up a number of other convicts, told them his own crew could not go as they were wanted for other work, that he had to go over to Trinkut to bring coconuts, and ordered them to come. They obeyed—of course as he was head Jemadar they could not refuse—and the boat started with the Jemadar and sixteen men. Soon after they got out of the harbour, some of those not in the secret, observed that they were steering South (the wind was against them), but he explained this by saying that after getting some way out, they would catch the wind well and run down without trouble to Trinkut; so the men went on rowing. Presently, however, as day began to dawn and the land was seen to be far away, the rowers who had been long protesting and grumbling, suddenly declared that they would go no further. But Khoda Buksh had prepared for this, he instantly produced a gun, his confederates hatchets, (the rest were of course unarmed) and vowed that the first who left his oar should be killed. The Jemadar and his friends were armed, and belonged to a bolder and more

marital race than the rest, and these latter naturally gave in. So they rowed South, till the wind shifted and then they ran straight on to Pilo Milu at the head of the little Nicobar. By this time they were short of provisions and water. Khoda Buksh was equal to the occasion; Pilo Milu had been visited twice in old days by European ships, by the Austrian Frigate *Novara*, and the Danish *Galatea*, and later, when we took possession of the Nicobars, in Colonel Mann's time, an Officer from Camorta had gone down in a boat and erected a flagstaff there. Khoda Buksh had gone down I believe with this Officer. He now landed, and informed the Nicobarese that he had come to inspect the flagstaff. The Nicobarese had no objection—putting up flagstaves and then coming two or three years later to inspect them, was an idiotic amusement, quite in keeping with their conceptions of European character—it pleased us and it didn't hurt them—and so they conducted him to the flagstaff, (to which he made several polite salaams), gave him water, cocoanuts, fowls, and saw him depart with mingled feelings of “did you ever,” and “what next?” Before leaving, however, he said “there will be a steamer with two white funnels down here soon, mind you give this letter to the Sahib on board.” In this letter, which he addressed to General Stewart, he gave the names of all the men with him, remarked that all were well and very happy, that he was well provisioned and was going South. South he went, beached the boat at Acheen Head, and then and there started off with his four companions and one of the twelve, unwilling fugitives, onward by land. Five or six days afterwards the fifth returned, he had been unable to keep up with Khoda Buksh and party, who knew thoroughly that no time was to be lost. Nothing more has been since heard, I believe, of these men. They were brave, resolute, strong, and are said to have had a thousand Rupees between them, and may, for all I know, yet turn up some day as Sultans of New Guinea, or Kings of the Cannibal Islands. The remaining twelve loafed about, sold the boat worth some \$200 for \$40, and endeavoured (and I understand not without success) to make themselves jolly under the untoward circumstances of being their own masters.

In the mean time Davison, who was collecting for me in the Andamans and whom General Stewart had kindly taken with him for a cruise through the Nicobars, arrived with the General at Camorta. There they at once heard of the escape, and steamed South, enquiring at all the islands until at Pilo Milu, Khoda Buksh's letter was duly delivered. Thence they went on to Acheen, found the boat, and after some negotiation with the Sultan, recovered her and the twelve runaways.

This is how Mr. Davison came to visit Acheen, where very few Englishmen have ever been before him, and I must now let him tell his own story.

"About 2 P. M., on the 31st January, 1873, we cast anchor off Acheen Head, about two miles from shore, and a little to the West of the mouth of the river. About 5 A. M., next morning, I availed myself of the opportunity of going ashore by accompanying one of the officers of the ship, who was entrusted with a letter to the Sultan. We soon reached the mouth of the river, but although our boat was pulling eight oars, owing to the extremely rapid flow of the river, and the laziness or inability of the boat's crew (who were Calcutta lascars) to pull against the current, it was not till after noon that we reached a kind of guard-house situated on the bank of the river about two miles from its mouth. Here we took on board one of the Native chiefs and proceeded about a quarter of a mile further up the river, when we landed and went to the town which was only a short distance off. On our arrival we were asked to wait a little till the Sultan should be informed of our arrival, and I was told not to shoot till I had obtained permission to do so. After waiting for some time, as the messenger whom we had sent to the Sultan did not make his appearance, I amused myself strolling about the place, and getting what information I could about the country and people; of course I could not speak the Acheenese language, but I made the acquaintance of a fine old Madrassee merchant with whom I was able to converse in Tamul, and to him I am chiefly indebted for what information I obtained. Before proceeding further, I may here state that, according to the native fashion, we were kept waiting till about 4 P. M., when a chief was sent to tell us that the Sultan could not see us that day, but would be happy to see General Stewart next day, about 3 P. M., and I was informed that I might shoot, *provided I did not shoot any of his Majesty's subjects.*

"Although I enjoyed wandering about the place, I much regretted the delay that had caused almost the whole day to be wasted; being prevented from shooting, I failed to secure specimens of birds which might have proved very interesting, as some that I saw the first day I never again met with. I should add to explain the paucity of my spoils, that although we remained off Acheen for three or four days, I was quite unable to penetrate any distance inland for want of guides; on asking to be allowed to go to the Golden Mountain, a wooded hill, 8,000 feet or so high, apparently some 20 miles distant, I was told I might certainly do so, *if* I could find any one to accompany me. I tried hard to do this, but found it quite impossible to induce

any of the Natives of the place to go with me; indeed I might have known from the way in which the permission was granted that the Sultan did not care to have Europeans roaming about the place. One merchant told me that he himself would have accompanied me, if he could have left his business, but he said it was much better that I should not go far, as the Sultan did not wish it, so, perforce, I was compelled to confine myself to the flat land in the immediate vicinity of the sea, which, to say the least, was but poor collecting ground, being either a succession of paddy fields, or ground thickly covered with the dunny palm, and intersected in all directions with innumerable small creeks, which made travelling about both tedious and unpleasant.

"The villages were few and far between, and were either built upon a piece of ground slightly elevated above the surrounding country, or on flat ground that happened to be dry and firm. In and around the villages were generally scattered a few large trees and clumps of bamboos, and the fields were often surrounded by a ditch and hedge of bamboos. These large trees and bamboos were the favorite resorts of the few land birds that were to be seen, and it was chiefly in these localities that I obtained my very poor show of specimens; unfortunately the moment I appeared in, or near a village, I was surrounded by all the boys, and not unfrequently by many of the men of the place, all of whom would persist in following me about, talking, or rather I should say yelling to one another, at the top of their voices, and running hither and thither, scaring all the birds, or if they did not do this, keeping so much in the way that I was obliged to be very careful in firing, lest I should transgress the Sultan's positive injunctions *not* to shoot any of his subjects.

"As you proceed up the river the country appears to get higher and dryer, and here may be seen fruit gardens, which are said to produce some fine fruit, chiefly the mangosteen and rambosteen; as to the former I cannot express an opinion, as there were none to be had at the time of our visit, but the latter which is a deep-red fruit about the size of a hen's egg, covered all over with tubercules or soft thorn like excrescences, and much resembling a iechee inside, is a really delicious fruit, and is comparatively cheap, for although only just coming into season about the time of our visit, they were selling at the rate of 300 for a dollar.

"The Mexican and Spanish dollar are the only current silver coins at Acheen, and although the Natives will take rupees, they never give the full value in change. Besides the dollar, there is a small leaden coin of Native manufacture, about the size of a

six pence, and very thin, with a few letters or characters stamped in relief on it, and which is apparently very largely used, but is, to say the least, a most inconvenient form of change to carry about or use, as in exchange for a dollar you get two thousand five hundred or three thousand of these leaden cash, which really means about a couple of lbs. of lead at the very least.

"The country inland and the islands Pulo Brassy, Pulo Whey, Pulo Rando, &c., are said to be exceedingly fertile, and to produce large quantities of spices, especially black pepper.

"The exports I was told consist chiefly of spices, (of which pepper forms a very large proportion) of mats, and straw caps; besides these, a quantity of silver, chiefly in the form of dollars which have been obtained in exchange for goods imported, is annually carried to Penang, Rangoon, or other adjacent ports. The imports are English goods, "*sarongs*" (waist cloths,) Indian muslins, and colored "*roomals*," (handkerchiefs), sugar, and rum, the latter only in comparatively small quantities. The trade is carried on by Madrassees and Chinese, but chiefly by the former. There were at the time of our visit six schooners, one brig, and one junk lying at anchor off Acheen Head, but I was told that trade had been for many years slackening, and that the country was nothing to what it once was, which complaint though common enough in most places is no doubt true enough here, if one may judge from the signs of former prosperity still existing. The whole coast at Acheen Head appears to have been at one time regularly fortified. Ruins of ramparts dotted with unmounted guns still stretch along the coast; the number of guns to be seen about is wonderful. Every three or four hundred yards along the coast, iron guns of different sizes, lie unmounted, and often half-buried in the soil or covered over with rank vegetation; near every village again two or three unmounted guns may be seen. The great mass are iron, and are generally small; one, however, that I found in the courtyard of what appeared to have been a small fort was of bronze, and measured about 22 feet long with an 8 inch diameter bore, the metal being about 6 inches in thickness at the thickest part; another lying in the courtyard of the Audience Hall was also of bronze, and bore in relief the English arms, and an inscription to the effect that it had been manufactured by two brothers named Pitt, A. D. 1617. The inscription was, if I remember rightly, as follows:

Jacobus Rex.
John and Richard.
Pitt Brethren
made this peece.
Anno 1617.

"The gun was some 11 feet long, the diameter of the bore was 23·5 inches, and the metal at the mouth only about 2·25 inches thick. Alongside the gun lay two round shot cut from blocks of granite. The gun does not appear to have ever been used, and although lying unmounted, exposed to all weathers, is in a wonderfully good state of preservation. The iron guns were apparently made in the country. Many years ago, they were manufactured (so I was told) by a Turk from Constantinople, who after he had made as many guns as the then reigning Sultan required, or could afford, had had his head chopped off in lieu of payment, and to prevent him from making guns for any neighbouring State.

"The present Sultan is an ill-conditioned, weedy, seedy, looking lad, about 18 or 19 years old; although so young, he has a harem of some sixteen "houris." He is only nominally Sultan, (the real power being in the hands of his uncle, a handsome and very intelligent looking man), but every deference is paid to him, at least in public, and this is apparently carried to such an extent that none of his subjects dare address him except in a loud whisper. At an audience given to General Stewart at which I was present, it was amusing to see how every question and answer passed through several mouths before reaching its destination. At one end of the audience chamber, if the only partially enclosed, and withal very disreputable looking building can be so termed, sat the Sultan, and at the other sat General Stewart. On the Sultan's right hand sat his uncle and prime minister, and between him and General S., stood three interpreters. General Stewart spoke to the one closest to him, in an ordinary tone, and I have no doubt but that the Sultan comprehended the purport of what was said, as he is understood to know Urdu. The first man after saluting the Sultan by raising both his hands with the palms placed together to his forehead and humming and hawing in a manner to give one the idea that he was about to choke, finally passed the message on to the man next him in a scarcely audible whisper, and so on till it reached the Prime Minister, who after saluting him in a similar fashion, whispered to the Sultan who seldom spoke more than a few words, often merely nodding or shaking his head in reply. He seemed to be perfectly indifferent, and appeared to think the whole proceeding a bore.

"The Audience Hall was about 20 feet long by ten or twelve feet wide, badly carpeted with a few rugs and pieces of carpet, of divers hues and patterns; the walls were ornamented with some very old fashioned brass-mounted blunderbusses, with all the brass ornamentation in a high state of polish; a guard was drawn up along one side, consisting of a most motley set of men

some armed with spears, others only with swords or creeses; altogether the whole turn-out was very shabby.

“From what I was told it appears that the Sultan has no standing army, but when soldiers are required each chief (and their name appears to be legion) brings his retainers; the one producing the most men taking the chief command; the men are generally a rather fine set, with a Malay cast of features; they appear to be very determined and independent, and look like people who would fight well.

“Besides the Malabar and Chinese merchants, there are a good many men of other nations, such as Arabs, a few Nubians, and an Eurasian of Burmese extraction. The Arabs are generally the Moulvies, the others are nothing in particular. The Sultan encourages people to settle in the place; he clothes, feeds, arms, and houses them, and gives them as many wives as they like, but they have to embrace the Mahometan religion, and all that is required of them in the form of work appears to be that they take their turn as palace guards. They never get any regular pay, and if they want money they must find means of making *or* taking it.

“In the bazaar, the shops are mere sheds, the floors raised on posts a few feet from the ground; the walls are composed of mats, and the roofs of a palm leaf thatch. The “Merchants Hall” is a larger and more pretentious building; its floor may be raised some twenty feet from the ground on posts, and its walls are composed of planks instead of mats. I saw no houses of a better kind though, doubtless, the chiefs have such inland. The villages I visited were mere clusters of mat huts, thatched with the everlasting dunny palm leaf; low mud walls often enclosing groups of these huts. The Sultan’s palace and grounds were surrounded by a high wall composed, I think, of brick. The Audience Hall was just inside an enormous gateway in this wall, and we entered through a small wicket in the gate. The palace itself was hidden from us by trees.

“A market is held daily, except on Friday, the Mahomedan Sunday, on an open piece of ground outside the town, from about 3 P. M., till dusk. Here fruit, vegetables, fish, eggs, grain, knives, cloth, poultry, and cattle are sold.

“Most of the things seem to be brought down the river to the town in the most wonderful little canoes imaginable; the stream is excessively rapid, running perhaps eight miles an hour, and down this come the little canoes, some ten or fifteen feet in length, crammed to the brim, with not above two inches of the gunwale above water, and guided by a single paddle.

“Besides these, many other descriptions of boats are to be seen,

Madrassee boats with their queer and apparently clumsy-looking spade-shaped oars; neat dapper little boats from the Chinese schooners and small native boats which are used either only in the river, or within sight of land.

"Then there are the large native fishing boats which go a long way out of sight of land. These are generally capital sailing boats, and often carry twenty or more men on board, who appear to be always heavily armed. The boat itself is usually mounted at the bows with an iron gun, about 5 or 6 feet long, and with a bore measuring 2.5 or 3 inches in diameter. These armed fishing boats I was told not unfrequently run down to Penang and back, the journey with a favorable wind taking about eight days.

"I do not know what the internal administration of the country is, or how justice (?) is dispensed, but I should say that it could not be very perfect, as the Natives generally settle any disputes they have by fighting wherever they may happen to be, often in the middle of the street, till one or other is killed; no notice is apparently taken of a man's losing his life in what may be considered a fair fight.

"I saw no wild mammals except a few small squirrels, but was told that the forests in the interior abounded with animals of different kinds, among which the rhinoceros was said to be not uncommon. Butterflies and beetles appeared rather scarce, but lizards, large and small, were to be seen commonly, and the river, creeks, and even small isolated patches of water, evidently only rain-water pools, abounded with a huge hydro-saurus, about five feet in length.

"The following is a list of the birds seen, but not actually obtained:

43.—*Cuncuma leucogaster*, Gm.

I saw two of these fish-eagles sailing about rather high up just off Acheen Head, about half way between the steamer and the shore.

127 *ter.*—*Pelargopsis Fraseri*, Sharpe.

I saw a *Pelargopsis* the first day at Acheen; it was sitting on a bamboo that overhung the river. I was within twenty yards of it for some time, and think that it belonged to the above species; it certainly was not *burmanica*, as it was much too blue for that species, and as we obtained *Fraseri** at Galatea Bay and

* I doubt if it is *Fraseri*. It is I think nearer *leucocephala*, and probably a distinct species *intermedius*, nobis. Vide Avi-fauna of the Islands of the Bay of Bengal. A. O. H.

Kondul Island, the identification of the Acheen bird is most probably correct.

134.—*Alcedo bengalensis*, Gm.

I saw this bird several times about the river.

135 *bis*.—*Alcedo asiatica*, Sw.

I have a note of having seen this species (which I obtained in the Andamans) on one occasion on the river. I could only identify it by its being much brighter colored than the last.

***Chrysophlegma miniatus*, Forst.**

I saw one wood-pecker, which I failed to obtain in consequence of tumbling into a creek while following it, in hopes of getting a shot. It appeared to me very similar to *Chrysophlegma xanthoderus*, Malh, which is the only species I know well, but was most probably the species above indicated.

IORA.....? I saw an *Iora*, which most probably was *I. scapularis*, Horsf., but I could not clearly identify it.

595.—*Nemoricola indica*, Gm.

I on one occasion saw this bird under some trees in a village.

***Ploceus hypoxanthus* ? Daud.**

On a large tree that I was unable to climb, and which the natives would not climb for me, I saw several nests of a weaver bird; they were smaller than those of *P. baya*. I failed to secure specimens of the bird.

938 *bis*.—*Demiegretta sacra*, Gmel.

I saw several blue-reef herons on the sea coast close to the river's mouth. I have no doubt but that they were of the above species, as they appeared perfectly identical with those we shot at the Andamans and Nicobars.

931.—*Butorides javanica*, Horsf.

On several occasions I flushed this bird from the edges of the small creeks.

934.—*Ardetta sinensis* ? Gm.

I saw a small heronet at Acheen: it rose out of a rice field, and appeared identical with the birds I had shot at the Andamans and which have proved to be *sinensis*.

Besides the above species which I think I have to a certain extent identified, I saw a large hawk eagle, and a small sparrow hawk, but only obtained a very cursory view of them, and cannot say what they may have been."

The following is a list of the species actually obtained :

132.—*Halcyon chloris*, Bodd.

Nine specimens, four males and five females, were obtained. These are the true *chloris*, they average, it is true, slightly larger, as I shall more particularly explain below, than specimens from various parts of the Andaman group and the Cocos; but they are in other respects precisely similar, and this is the more remarkable, because throughout the Nicobar group (which lie midway between the Andaman Islands and Acheen, and which were apparently beyond question at some past stage in the world's history part of one unbroken mountain range stretching from Arracan to the southernmost point of Sumatra at any rate), a totally distinct species, *H. occipitalis*, Blyth, occurs, to the absolute exclusion of *H. chloris*.

As regards *H. occipitalis* from the Nicobars the distinctness of which was uncertain when Mr. Sharpe published his magnificent monograph of this family, I may mention that this gentleman to whom I sent a specimen, now entirely agrees with me, that Blyth's is a good species, more nearly allied perhaps to *H. Juliae*, Heine, than to *chloris*.

In regard to *chloris*, generally, Mr. Sharpe remarks "very great variation in the shades of green and blue is observable in this species, for which I am unable to account as a sexual difference, as the females do not appear to be less brightly colored than the males. I believe, therefore, that the brilliancy of plumage depends on the age of the bird, the green tints predominating in the more adult."

Now in the first place I would remark that the color of *chloris* depends wonderfully on the light in which the bird is looked at; if looked at against the light, that is to say when one is facing the light, they look much bluer, while, if looked at standing with one's back to the light, they are very much greener. Setting this, however, aside, with forty-one specimens carefully sexed before me from the Sunderbunds, the Cocos, the Andamans, and Acheen, it is very manifest that the females and the young males are much greener, and the adult males much bluer, and as far as I can judge the older the males, the bluer they get.

The bills in this species vary much in shape and size; primarily, no doubt, according to locality; the Sunderbund birds for instance having the smallest bills of all, very much more compressed towards the point than any others, and also having the white supercilium more developed than in any others that I have seen; but the bills also vary much in the same locality according to individuals, some having them worn away towards the points

to an almost incredible extent. I at one time thought that this was a sign of age, but I subsequently procured quite young birds with the whole breasts narrowly barred with greyish black, which had the bills as much worn away as any adult, and I am inclined now to believe that this attrition of the bill depends rather upon the food. Some birds subsist more upon shell-fish which they may be seen hammering to pieces with such vigor that it is wonderful that they have any bills left at all, while others again, which either temporarily or permanently live rather inland than exactly on the sea-coast, feed principally on huge centipedes and little lizards.

I mentioned above that the Acheen birds were decidedly larger than those from the Andamans and Cocos, and as the birds were all carefully measured in the flesh (13 of both sexes from the latter and 9 from the former), the subjoined dimensions which clearly exhibit this fact are not without interest :

	Length.	Expanse.	Wings.	Tail (from vent.)
Andaman & Cocos	9 to 10	13·82 to 14·75	3·9 to 4·25	2·75 to 3·1
Acheen	9·5 to 10·25	15·5 to 16·25	4·25 to 4·5	3 to 3·4

Mr. Davison remarks, "I do not think that I saw this kingfisher on the river going up to the town where the Sultan resides; but the country lying on either side was low, and intersected with numerous creeks of brackish water, fringed with the dunny palm, and in many places thickly cropped with paddy; in these localities, and in the immediate vicinity of the villages which are sparingly scattered about, I found the white-collared kingfisher exceedingly abundant, more so than it was in the Andamans, but not so numerous as its congener *H. occipitalis* is at the Nicobars. I find I have dotted down a note to the effect that the Acheen bird appeared to me to be very much more noisy than the same species at the Andamans—three or four would get together on the same branch, partially spread and lower their wings and commence a regular squealing concert which they would continue for a minute or so, when one would fly off to another tree, (followed in succession by the others) where they would again go through the same performance.

One day I had shot a white-collared kingfisher on a tree standing close to a village, (and of course as usual when I happened to be near any houses, I was accompanied by about a score of boys and men); the bird however instead of dropping to the ground only dropped a few feet and remained suspended by the neck in a small fork about fifteen or twenty feet from the ground. As none of the natives around me would climb the tree, I divested myself of powder and shot flask and hat and commenced ascend-

ing the tree, but when about a dozen feet from the ground, I ran my bare head into the bottom of a large ant's nest, which I had not before seen; in an instant I was covered with thousands of the enraged owners of the nest into which I had so uncere- moniously intruded my head; they swarmed over my face, head, and hands, and down my back, biting so furiously that I was obliged to spring to the ground, and pull off my clothes as fast as I could, while the natives around me laughed as though the whole thing was a capital joke, and I have no doubt but that to them it was so, but to me at the time it did not seem quite so amusing. It was with considerable difficulty that I freed myself from the pests. As obtaining the bird by climbing was out of the question, we were obliged to resort to "Aunt Sally" practice, and thus eventually, I got my bird which was a remarkably fine specimen."

197.—*Xantholæma hæmacephala*, Müll.

A single specimen procured at Acheen is undistinguishable as regards color from Indian examples, but it is a somewhat smaller bird with a wing of less than 3 inches, and a decidedly shorter and broader bill, more suddenly compressed a little beyond the nostrils than in the Indian bird. It is impossible to draw any conclusions safely from a single specimen. Mr. Davison mentioned that he only observed a single pair of this species on a tree close to a village.

217 *quat.*—*Centrococcyx eurycercus*, Hay.

This species appears to be very common about Acheen. It is at once distinguished from the Indian birds by its much larger bill. The following are the dimensions of a fine male measured in the flesh:

Length, 19·5; expanse, 24; wing, 7·9; tail, from vent, 9·5; the wings, when closed, reached to within 6 of end of tail; the tarsi, 2·05; hind claw, 0·9; bill at front, straight from forehead to tip, 1·5; from gape, 1·95; the legs, feet, claws, and bill, black; irides, deep carmine; weight, 12 ozs. This is of course Horsfield's *bubutus*, apud Raffles, and I must say that I believe that this name should stand, but as Lord Walden has particularly studied this group and believes that the Javan bird will prove distinct, I follow him in retaining his name.

There is a rather remarkable fact in connection with these crow-pheasants, which I wish to notice prominently. Lord Walden remarks *Ibis*, 1872, p. 366, "*C. eurycercus* can always be distinguished from the Continental *C. rufipennis*, Illiger, by its larger size, by the tail of the full plumaged bird (?) being blue and not green, and by the *interscapulary region of the back being color-*

ed like the wings. Even in young birds with striated plumage, this part of the back will be found to have some rufous feathers."

Now these remarks as to *C. rufipennis* apply quite correctly to birds from the Central Provinces, parts of the North-West Provinces, and parts of Southern India, all of which have wings varying from 7·6 to 8, and they also apply to birds from the extreme South of India as at Anjango where the wings vary from 6·75 to 7·5; but they do not apply to birds from Sindh, Sikim, Dacca, the Dhoon, and Thayetmyo, all of which, (at least so far as my specimens go) have the interscapular region red, even, as Lord Walden says, in the young birds in more or less barred and striated plumage.

There are, moreover, two distinct races of these red-backed birds. The one, of which I have specimens from Sindh and Sikim, in which the wings vary from 9 to nearly 9·5, and the other in which they are of the same size as specimens from the Central Provinces and the Nilghiris. Of these I have specimens from Dacca, the Dhoon, and Thayet myo. Neither of these are *eurycercus*, first because the tails are decidedly green, secondly, because even in the huge 9 inch and upwards-wing race, the bills are not nearly so large as in the much smaller true *eurycercus* from Acheen. Unfortunately, I am worse off for specimens of this common species than I am for almost any other bird, having only sixteen altogether, and so I can make nothing satisfactory of the matter. Sindh and Sikim birds on the one hand, Dacca, Dhoon, and Thayet myo birds on the other, quite alike, and both different alike from *rufipennis* and *eurycercus*.

I can make nothing of Dr. Gray's arrangement of the synonymy of this species. He gives us only one species in India, *bengalensis*, while he gives *rufipennis* from Java only. To which latter locality he also assigns as distinct species, *lepidus*, Horsf. *affinis*, Horsf., and *eurycercus*, Hay. I must leave Lord Walden to elucidate this matter; in the mean time, if the two races above indicated prove distinct, I would call the large Sindh and Sikim birds *C. maximus*, and the Dhoon, Dacca, and Thayet myo birds, *C. intermedius*.

269 bis.—*Lalage terat*, Bodd.

The Acheen bird appears identical with specimens from the Nicobars. This species will be fully described in our paper on the Avifauna of the islands of the Bay of Bengal and need not here be further discussed.

This bird appeared to be rare, the one obtained which was not adult, was the only one seen.

— ? *Leucocirca*.....?

This bird, and I dare say it is not new, though I cannot make it out, has precisely the plumage and habits of the *Leucocirca*'s. So far as plumage goes, it is very close to *pectoralis*, Jerdon, from the Nilghiris, but it is slightly smaller, decidedly darker, has the tippings to all but the central tail feathers, a purer white, and has much less white on the throat ; but on the other hand the bill is differently shaped to that of any of the *Leucocirca*'s and much more resembles that of *Myiagra azurea*, but is a good deal longer than that even, and is in fact a miniature of that of *Tchitrea* in outline, though much more depressed. It may be *Rhipidura perlata* of Müller or *longicauda* of Wallace ; but I can find no descriptions of these birds. The following are dimensions and descriptions :

Length, 7·5 ; expanse, 8·75 ; wing, 2·9 ; tail, 3·82 ; tarsus, 0·75 ; bill from gape, 0·65 ; the irides were brown, the bill black, fleshy at the base of the lower mandible. The head and sides of the neck sooty black ; a short broad supercilium, over the posterior part of the lores, and the anterior half of the eyes, white ; wings and back, smoky brown ; upper tail coverts and tail, dark hair brown, all but the four central tail feathers (of which there are *twelve* in all) broadly tipped with pure white ; the external ones most broadly so ; the feathers next the central tail feathers with a very narrow white tipping at the extreme point. Centre of chin and throat white, sides of the throat and breast and point of chin, black ; abdomen, vent, and lower tail coverts, white, with a yellowish tinge ; wing lining, mixed grey and white ; axillaries, brownish white.

If this species is new, I would name it "*infumata*."

The habits of this species seem in one respect peculiar. Mr. Davison says, " I chiefly observed this bird in or close to the villages and generally found them perched on the backs of cattle, from which strange perch they kept darting after insects, occasionally alighting on the ground. They are very restless little birds, flitting about hither and thither, and spreading their tails on alighting, like all our Indian *Leucocirca*'s."

449 bis.—*Trachycomus ochrocephalus*, Gm.

The Acheen birds appear identical with those from Malacca and the Malay Peninsula generally. This bird occurs within our limits, having been obtained in the Tenasserim Provinces, and I therefore subjoin measurements recorded in the flesh, which I believe have never before been given, and a description.

Length, 11 ; expanse, 15 ; wing, 4·75 ; tail, from vent, 4·75 ; tarsus, 0·9 ; bill, from gape, 1·05 ; weight, 3 ozs.

The bill, legs, and feet are black; the iris, brown. A line from near the nostrils to the eye, and projecting a short distance behind it, and a broad line from the base of the lower mandible rather more than half an inch in length, black. The whole forehead, top, and back of the head, the lores under the black eye-streak, and a patch under the eye, including the basal half of the ear coverts, buffy yellow; the feathers greyish at the base, and, those of the occiput especially, obscurely centred paler; the back of the neck and upper back, brownish grey; the shafts albescent, and the feathers tinged and suffused, most strongly so towards the margins, with olive green, which varies in shade and extent in different specimens; the rump and upper tail coverts are a more or less dull olive green margined with a brighter tint of the same color; the lower back is generally browner, and less green; the quills and rectrices are hair brown, strongly suffused on the outer webs (and in the case of the central tail feathers on both webs) with a kind of golden olive, and margined brighter; the greater and median wing coverts similar, but a paler and duller olive green; the lesser wing coverts towards the shoulder of the wing centred paler and sometimes with a bluish grey tinge. The chin and throat white, with a slight buffy tinge, in some specimens, towards the sides; the feathers of the breast conspicuously white shafted and white centred; laterally, a more or less dull olive brown, more or less obsolete according to the state of plumage in which the bird is; abdomen, dingy brownish white, more or less striated with pale brown; lower tail coverts similar, but margined with chrome yellow; edge of the wing at the carpal joint, a rather bright yellow; wing lining, pale rufescent white, yellower in some specimens, more fawn colored in others; margins of the inner webs of the quills on the lower surface strongly suffused with a very pale slightly rufescent yellow.

Mr. Davison says, "On a large tree growing in a village, I saw a party that were keeping up a continual chatter like a flock of *Hypsipetes nilghiriensis*, flying from branch to branch as they chased one another; I fired one barrel at them and killed two, and found them to be this bird; the note is quite that of a *Hypsipetes*. I only observed them on this one occasion."

Otocompsa.....?

This is another species that, for want of works of reference, I cannot identify. It may be *tigus*, or it may be *tympanistrigus* of Müller; but I am unable to identify it. The following dimen-

sions taken in the flesh, and description will, however, render identification easy by naturalists at Home.

Length, 7.75 to 8.5; expanse, 11 to 11.75; wing, 3.4 to 3.6; tail, 3.5; tarsus, 0.7 to 0.8; bill, from gape, 0.85 to 0.9.

The bill, legs, and feet are black; the irides brown. The lores and a circle round the eye are black; there is a long white superciliary stripe from the nostrils almost to the nape; between these from the forehead to the nape, the whole top of the head is a rich, somewhat umber brown in freshly-moulted birds, which brown however fades apparently soon after the moult; the whole of the rest of the upper plumage is a dull, rather pale brown, every feather obscurely margined with a dull olive or greenish yellow; the upper tail coverts have this margin slightly brighter, and the ends of the longest soft rump feathers are in freshly moulted specimens somewhat conspicuously paler; the chin and throat and a line under the posterior half of the eye, dividing this from the ear coverts, white; these latter and the sides of the neck, pale brown or whity brown, varying in shade in different specimens; sides of the breast, more or less brown, the central portion mottled brown and white; abdomen, white; flanks and tibial plumes, pale brown; vent tinged with pale yellow; lower tail coverts, very pale primrose yellow, tinged towards the margin with a much brighter primrose.

I am by no means sure that this should not be placed as an *Ixos*. The head is not crested, the feathering of the rump is very full, and there are distinct hairs on the nape; but on the other hand the bill, the general tone of coloring, and the habits are those of *Otocompsa leucogenys* and *leucotis*. I do not suppose that this is new, but if so, it may stand as *Otocompsa personata*, Davison, the name Mr. Davison gave it from the peculiar appearance it has in life of wearing a mask.

Mr. Davison notes that "this is the most common bird at Acheen; although occurring in almost every locality, it was particularly abundant in and around the villages, keeping, in small parties, or occasionally in pairs, in the low scrub and brushwood. The note and habits seem to be identical with those of the Indian *Otocompsa*'s. The broad superciliary stripes, the black lores and eye circle, and the white throat and cheek streak give the bird a very peculiar appearance."

Oriolus hippocrepis, *Wagler*.

The Acheen oriole appears to belong to this species; it is very close to *indicus* of Southern India, but has a much larger bill, much more conspicuous white edgings to the earlier primaries,

and much less yellow on the tertiaries and secondaries ; the wing spot formed by the yellow tips to the earlier primary greater coverts is almost obsolete in the present species. It is a much larger bird and has a far larger bill than *O. andamanensis* which, moreover, has scarcely any yellow at all on the secondaries or tertiaries, and only the merest trace of a wing spot.

Compared again with *O. macrourus* from the Nicobars, it is a somewhat smaller bird, has a good deal smaller bill, and it agrees with *acrorhynchus* (which Gray says is identical with *chinensis*, though Lord Walden (*Ibis*, 1873, p. 306) as I think* correctly, makes them distinct) in having a considerable portion of the external tail feathers black, while *macrourus*, in fine specimens, has nearly the whole of both external lateral tail feathers on either side bright yellow ; *macrourus* also has less yellow on the secondaries and tertiaries, scarcely any in fact ; *acrorhynchus* again differs from both the Sumatran and Nicobar birds in having a much broader occipital band, and apparently in entirely wanting the wing spot. The Acheen bird has a much smaller wing-spot, and has more black on the outer tail feathers than *Broderipii*, Bon.

The following are dimensions taken in the flesh of four females of the Sumatran bird :

Length, 10 to 10·25 ; expanse, 17 to 17·25 ; wing, 5·25 to 6 ; tail, from vent, 3·75 to 4·12 ; tarsus, 0·9 to 1 ; bill, from gape, 1·3 to 1·45 ; weight, 2·5 to 3 ozs.

The legs and feet were plumbeous, the bill carneous ; the irides, carmine. Mr. Davison remarks :

" This oriole was tolerably abundant, but kept in the vicinity of the villages, frequenting, by preference, the dense clumps of bamboos. The note is very similar to that of *O. indicus*, but perhaps a trifle harsher."

Copsychus mindanensis, Gm.

This species differs from our Indian *sularis*, first, in the amount of white on the tail in both sexes, and secondly, in that the female has the whole upper surface black and only slightly duller than the male, instead of iron grey as in the common Indian species ; the breast of the female is also a much darker grey than in the Indian bird. As regards the tail in *sularis*, the whole of the four external tail feathers on each side are either pure white, or else have only a little dusky stripe on the inner web towards the base of the innermost of the four feathers ; *mindanensis* on

* My specimens of *chinensis* differ conspicuously from *acrorhynchus*, in the smaller bill, and size generally, in the much narrower nape band, conspicuous wing spot, and the great extent of the yellow on the secondaries and tertiaries, which even surpasses that in *indicus*.

the other hand has the three exterior feathers white, all three of them with a gradually increasing dusky or blackish patch on the inner web, while the fourth feather is black, with the exception of a narrow white tip and a tongue of white running up from this along the shaft on the outer web for about an inch or so. The following are the dimensions taken in the flesh of a female:

Length, 8.75; expanse, 12.5; wing, 3.75; tail, from vent, 3.5; tarsus, 1.15; bill, from gape, 1.05; weight, 1.75 ozs. Bill, black; legs and feet, horny.

Mr. Davison notes: "I only saw this bird once; a pair were together in a dry ditch where they were apparently looking for insects among the dry leaves that had there accumulated."

Suya albogularis, Sp. Nov.

This is a very distinct, and I believe unquestionably new species. My Yarkand *S. albosuperciliaris* was not, as I stated at the time, a thoroughly typical *Suya*; the present is an eminently typical species; it is closest to *atrogularis*, but may be distinguished at once from that species by its much larger bill, its conspicuous though narrow, pure white supercilium, and by its white chin and throat, the feathers white to their bases. Fine specimens of *atrogularis* also exhibit a supercilium, but it is always a dingy brownish white; again at one stage of its plumage, *atrogularis* has the chin, throat, and breast, dingy brownish white, but the basal portion of the feathers in this species is always dusky or blackish, whereas in the Sumatran bird, they are white. The tarsi also are somewhat stouter than those of *atrogularis*. The upper plumage is very close to that of *atrogularis*, but is somewhat greyer on the head and more rufescent olivaceous on the back and rump. The ear coverts in the present species are grey, the shafts faintly albescent, so as to produce a slightly striated appearance.

The dimensions of a female of this species taken in the flesh are as follows:

Length, 7; expanse, 6.25; wing, 1.82; tail, from vent, 3.6; tarsus, 0.8; bill, from gape, 0.65; weight, nearly 0.5 ozs.

Iris, red brown; legs and feet, caraneous; bill, dark horny, tinged pinkish on lower mandible.

Mr. Davison says: "I met with this bird at a village on the East Coast of Acheen, in a small party of about six or eight, among a thick growth of nettles: they were keeping up a continual note like a very subdued "rattle of the bones." Occasionally, one would work his way to the top of a plant and rattle louder than his companions, disappearing the moment he had finished. On shooting one, the others became quite

silent at the report of the gun, and disappeared in a most miraculous manner."

690 bis.—*Calornis insidiator*, Raffles.

The Sumatran bird is, as Lord Walden says of the Bornean bird, (*Ibis*, 1872, p. 381) precisely identical with Malaccan and Singaporean specimens, and therefore there is no doubt that all these should stand as *insidiator*, Raffles, unless the Javan bird proves identical, in which case Horsfield's name *chalybea* would stand. The following are the dimensions of a female recorded in the flesh :

Length, 8·5 ; expanse, 13 ; wing, 4 ; tail, from vent, 3 ; bill, legs, and feet, black ; irides, carmine.

As I have elsewhere noticed, the Nicobar and Andaman birds are quite distinct, alike from this species and from the other species, commonly considered to be *affinis*, Hay, from Tipperah and Dacca. Mr. Davison remarks—

"Apparently not common, occurs in small parties and keeps much to the cocoanut palms and other high trees ; the note appears to be the same as that of the Andaman and Nicobar bird."

Munia maja, Lin.

According to Gray, this species stands as above. Lord Walden (*Ibis*, 1871, p. 177) gives the name as *maya*, and I have no doubt he will tell us in an early number of the *Ibis* that Gray's spelling is an obvious misprint. Where Linnæan names are concerned, it is not very clear what does constitute an obvious misprint ; doubtless the specific name of the common Indian Dial bird *sularis* is an obvious misprint for *solaris*. For the present I propose to retain Mr. Gray's spelling of the name as above given. Raffles's original description of this species runs as follows :

"About the size of *munia malacca*, of a reddish brown, or chestnut color, growing darker towards the tail, and becoming almost black upon the abdomen. Head and neck, almost white ; bill, bluish ; legs, black."

A young bird shot at Acheen is a nearly uniform, rather pale, somewhat rufescent, brown above ; the quills and tail feathers, except on the outer margins, hair brown ; the whole lower surface, fawn color, paler on the chin and throat ; the bill, legs, and feet were pale leaden blue ; the irides, brown. It measured, length, 4·75 ; expanse, 6·82 ; wing, 2·12 ; tail, 1·6 ; tarsus, 0·55 ; bill, from gape, 0·45. Mr. Davison remarks :

"This little bird was not very numerous : those I observed kept to the paddy flats, they occurred in small flocks. In habits they resembled *munia striata*, &c."

774 bis.—*Osmotreron viridis*, Scop.

This beautiful species, (which also occurs in Tenasserim, and which I therefore describe) is closely allied to *bicincta*, but differs in its entirely grey head, neck, and throat, in the greater size of the orange patch on the breast, and in its intensely deep chestnut lower tail coverts, which in fine specimens extend nearly an eighth of an inch beyond the tip of the central tail feathers.

The following are dimensions of specimens, (males,) measured in the flesh:

Length, 10·75 to 11; expanse, 17 to 17·25; wing, 5·25; tail, from vent, 3·5 to 4; tarsus, 0·65 to 0·75; bill, from gape, 0·8 to 0·85; weight, 6 ozs.

The irides are rose pink; the bill, pale plumbeous; the corneous portion, whitish; the cere and edge of gape, green; the legs and feet are a more or less pale, lake red.

In the male the whole head, upper neck all round, chin and throat, a delicate French grey, with a faint greenish tinge on the forehead, cheeks, chin, and throat; a broad collar all round the base of the neck, pale vinaceous purple; the breast, deep orange; the abdomen, bright vernal green; sides and wing lining, pale slaty grey; flanks and vent feathers, pale yellow, mingled with green; tibial plumes, pale yellow; lower tail coverts, deep chestnut. The entire mantle and back, dull grass green; upper tail coverts tinged with rufescent towards their tips; primaries, secondaries, and their greater coverts black, the first two or three primaries, and a few of the later secondaries very narrowly edged with pale yellow; tertiaries and some of the secondary greater and median coverts, broadly margined with pale yellow; tail feathers, dark slaty grey, all but the central ones, with a conspicuous, broad, subterminal, blackish band; a trace of the same on the central tail feathers; looked at from below the tail feathers are almost black, with a narrow greyish white tipping.

"This beautiful bird I found," writes Mr. Davison, "in small parties of six or eight; they appeared to avoid the vicinity of villages and kept more to the uncultivated parts. They have a low soft whistle ending in a sort of coo, very unlike that of *O. chloroptera*, *malabarica*, &c."

795 bis.—*Turtur tigrina*, Temm.

If we compare specimens of *Turtur suratensis*, Gm., from Dacca eastward, to the Agrore Valley in the extreme North-West, they are all identical; every feather of the mantle more or less dark shafted, and with more or less of a triangular dark spot on the shaft at the extreme tip of the feather, and on either

side of this spot a large roundish pale vinaceous pink spot. If we take specimens from Upper Burmah, say Thayetmyo, they are very similar, but the large conspicuous vinaceous spots have become reduced to narrow lines. In the Sumatran bird, they have disappeared altogether.

I have not had time to turn up Malaccan and other specimens, but I suspect that an unbroken series of forms connecting the typical Continental Indian and Sumatran birds will be found, and under these circumstances I am doubtful how far they can be properly maintained as distinct species. Mr. Davison says:

"Apparently not common. I saw it occasionally about the fields. An Acheenese had one alive in a cage, for which he wanted the absurd price of \$ 5."

845.—*Charadrius fulvus*, *Gmel.*

This species was very common about Acheen: it chiefly frequented cultivated fields. Two specimens were obtained, absolutely identical with Indian, Burmese, and Andamanese examples.

891.—*Totanus glareola*, *Lin.*

"Not common, chiefly found about the paddy flats and small marshy spots inland."

907.—*Gallinula phoenicura*, *Penn.*

The white-breasted water-hen of Sumatra is absolutely identical with specimens from Madras, Sindh, Dacca, Burmah, the Andamans, and Nicobars. Individuals from all localities vary extraordinarily in size and in the width of the white frontal band, but these differences appear to be individual and not local. Mr. Davison says, "this bird is common about the creeks and paddy flats, and especially abundant along the edge of the river; but they were more often heard than seen."

927.—*Ardea garzetta*, *Lin.*

929.—*Bubulcus coromanda*, *Bodd.*

"Both the above species," remarks Mr. Davison, "were common, the latter perhaps preferring little marshy places in the vicinity of villages, the former apparently confining itself to the river's edge or to the creeks."

Tantalus lacteus, *Temm.*

The only specimens obtained were young birds apparently those referred to by Raffles (Trans. Lin. Soc., XIII., p. 327,) as *T. cinereus*, but in an intermediate stage between those he described and the adult.

The whole head and neck all round is dingy whity brown, the feathers being brown at their bases and whitish at their tips; the whole of the body including the scapulars, upper and lower tail coverts, and tibial plumes, and most of the median and lesser wing coverts, a dirty white; only the lesser coverts immediately along the edge of the wing, a dirty brown; the quills and most of the greater coverts and the rectrices, a dirty blackish brown, palest on the tertiaries. Davison says:

"I saw an enormous flock of these birds on the mud banks of a large creek: they were not particularly shy, and I advanced under cover of some bushes to within 20 yards of a number, and as far as I could make out, the whole flock consisted of birds colored exactly like the two specimens shot, which seem immature."

A. O. H.

Notes upon some of the Indian and European Eagles.

By W. Edwin Brooks, Esq., C. E.

No. III.

HAVING received an African example of *Aquila navioides*, Cuv., I find it is a species quite new to me; and that the Indian bird of which I sent a few home for identification was wrongly identified by the English ornithologists with *Aquila navioides*. Our Indian bird is *Aquila fulvescens*, Gray, and accords most perfectly with the plate in Gray and Hardwick's illustrations of Indian Zoology. Mr. Gurney was the first to point out to me that our common Indian Wokhab, *Aquila vindhiana*, Franklin, was not entitled to the name of *fulvescens*.

Aquila navioides, like our *A. vindhiana*, has a long vertical nostril, also a well barred grey tail like the Indian species. The coloration, however, is much finer, and no wokhab can approach the African species in this respect. The large amount of parti-colored plumage is striking; and if a fairly spotted *Aq. navia* had its spots turned yellowish, and the whole body, save scapulars, wings, and tail of a deep yellow buff, the bill made much stouter, and the round nostril made long and vertical, also the tail made hoary and well barred, then we should have the characteristic plumage of *Aquila navioides*, the tawny eagle. Its "tawny" color is not the rufous buff of *A. fulvescens*, but a deep yellow buff, most peculiar and unmatched by the color of any other eagle.

This tawny plumage is however only one stage of the bird's plumage; and in the *Ibis* for April, 1865, is represented in the upper figure the adult bird.

Aquila fulvescens, Gray, the Indian tawny eagle, is very easily distinguished from both the other species, which it somewhat resembles, by its *very round nostril*, plain black tail, and longer and feebler legs. The bill is also feebler in proportion. It is also a migratory eagle, which the other two are not. In my recent papers on the different eagles, my references to *Aquila naevioides* are to the Indian species, *Aquila fulvescens*. I did not then know the other bird.

Indian ornithologists should carefully note that *Aquila fulvescens* is quite a distinct bird from that described under the same name by Dr. Jerdon, at page 60 of his first volume. This species (No. 29 in Dr. Jerdon's book) must be altered to *Aquila vindhiana*, Franklin.

It has often been thought that *A. vindhiana* was identical with the African *A. naevioides*; *but it is not so*. No two eagles could be more truly distinct, though they are closely affined and *structurally* alike. Each of the three eagles of which I have spoken in this short paper, has a light and a darker stage; but while in *Aquila fulvescens* and *A. naevioides* the buff stage is the more youthful one; in the third, the common wokhab, *A. vindhiana*, the pale stage is that of a full aged bird. The latter does not appear to be regularly subject to this pale dress (which is a pale whity brown without any of the warm buff of the other two species,) but those birds which have not *fast* colored plumage become bleached.

The same bleaching is very observable in *Aquila naevia* and less so is *Aquila hastata* and *A. bifasciata*. The species which fades the least is *Aq. mogilnik*.

Novelties?

Spilornis minimus, *Sp. Nov.*

Resembles cheela, but is much paler, has the throat and breast entirely unbarred. Is the smallest of its genus. Wings varying from 11·6 to 11·75.

WE only met with this diminutive species in the neighbourhood of Camorta (Nicobars), and, unfortunately, only secured

two specimens. One a young female, the other an adult, and, as far as shot injuries enabled us to make out, also a female.

Davison who resided nearly a month at Camorta saw altogether about six specimens, but they were so shy and wild, that he could not get within shot. They did not keep along the shore or sit upon mangrove trees, fringing swamps and creeks, but remained inside the jungle on the edges of the forest paths.

The dimensions of the adult measured in the flesh were as follows :

Length, 18.75 ; expanse, 39 ; wing, 11.6 ; tail, from vent, 8.6 ; tarsus, 2.75 ; mid toe, to root of claw, 1.6 ; bill, from gape, 1.6 ; weight, 1.5 lbs.

The young female measured

Length, 19.5 ; expanse, 38.5 ; wing, 11.75 ; tail, from vent, 9 ; tarsus, 2.7 ; bill, from gape, 1.65 ; weight, 1.5 lbs.

This latter was beyond all doubt a female, and so we have little doubt was the former ; but as above mentioned, injury by shot prevented our being absolutely certain of this.

In both, the legs and feet were yellow, the claws black ; the bill light blue, dark horny at the tip. The irides, cere, gape, and-orbital skin, bright yellow.

The adult has the whole top and back of the head and back of the neck black. The nuchal and occipital feathers developed so as to form a full crest ; the posterior feathers narrowly margined at the tip with whitish brown. The whole mantle, pale brown, with a purplish tinge on the coverts and scapulars, most conspicuous about the shoulder of the wing. Most of the lesser coverts, a few of the median coverts, and a few of the middle scapulars with a white spot or a narrow white line at the tip. Rump and upper tail coverts, the same color as the back ; most of the feathers with a narrow white terminal fringe. The tail pale brown, narrowly tipped with white and with a subterminal, and one other 1.25 inches broad, blackish brown transverse bar. Cheeks and ear-coverts the same color as the upper back, a light brown. The whole lower parts a still paler, duller, and more earthy brown, entirely unbarred and unspotted on the chin, throat, and breast, but each feather of the sides, abdomen, and axillaries with numerous large whitish spots, arranged in double rows one on each web, becoming on the vent feathers irregular bars. Tibial plumes similar, but the white spots larger, and forming complete bars, or nearly so. Lower tail coverts, yellowish white, with more or less regular, arrow-head shaped, pale, brown bars. Lower surface of the tail, grey, the dark bars only shewing faintly through. The quills, brown ; all the secondaries and all but the first two, or three primaries, conspicuously but not broad-

ly tipped with yellowish white. The lower surface of the quills grey, whitish at the base with broad blackish brown tips, with a broad bar of the same color about 1.5 inches higher up, and faint freckled traces of a similar bar near the base. The second to the sixth primaries are conspicuously emarginate on the outer web, that of the second primary concealed by the coverts, and traces of a similar emargination on the seventh. The first four primaries festooned, but not deeply so on the inner web. The wing lining mostly white, but mottled more or less with somewhat rufescent brown, especially about the carpal joint, and along the ulna.

The upper surface of the young bird is similar, but the white bases of the crest shew through conspicuously, and all the occipital and nuchal feathers are broadly fringed with pale rufescent, or buff. The tail feathers are a yellowish brown, the broad dark bars only faintly marked. The coverts, scapulars, and upper tail coverts, show but few of the white tippings conspicuous, especially about the shoulder of the wing, in the more adult bird. The chin, throat, and upper breast are much as in the adult, but the lower breast, abdomen, sides, and flanks, and the longer lower tail coverts and most of the tibial plumes are a dingy yellowish or buffy white, entirely unspotted, only a few feathers on the sides; a few of the tibial plumes, and a few feathers about the vent are new feathers, and resemble those of the adult. I may add that one of the central tail feathers is also like those of the adult. The entire wing lining is yellowish white, shading into pale rufescent or salmon color along the ulna, and on the axillaries. Two or three of the coverts along the ulna exhibit ill-defined brown bars or spots towards the tips. Lower surface of the quills differ conspicuously from those of the adult; the tips are much less dark, and above these the first primary exhibits two, and the others three, fairly well marked dark brown transverse bars.

This bird is very closely allied, apparently, to *rufipectus*, Gould, and I at one time thought that it might belong to this species, and that my supposed adult might be in an intermediate stage between the old and young birds figured by Mr. Gould (Birds of Asia, pt. XII.); but my bird of the year is totally different to the young bird he figures, and my adult with a perfectly black crest, and to judge from bill and feet and texture of plumage, anything but a young bird, has not the faintest trace of rufous either on breast or nape. Moreover, the arrangement of the bands on the tail in both old and young in *rufipectus*, differs conspicuously from that in the tails of both my birds old and young. In both species the extreme tip of the tail is white or whitish,

then comes in both a broad subterminal dark band, and above this a broad paler band, above this in *rufipectus* comes a narrow dark band, then a narrow pale band, and then the rest of the visible portion of the tail is dark. In the present species we have a dark broad band, as broad as the subterminal one, and the rest of the visible portion of the tail is pale.

Heteroglaux, *Gen. Nov.*

Size, medium; head, small; disc, imperfect; nostrils, medium sized, pierced well inside the margin, of a moderately developed cere; external orifice of ear, smaller than eyes, circular, without operculum, mouth of internal orifice, crescentic. Wings short, with short wing ends, first four primaries very conspicuously notched on the inner webs, 4th primary longest, 3rd intermediate between 4th and 5th, 2nd intermediate between 5th and 6th, 1st equal to 8th; tarsi, stout, short, equal to mid toe without claw, densely covered with silky feathers; upper surfaces of toes, thickly covered with stiff bristly-shafted feathers, inner toe longer than outer.

This very peculiar form of owl which I cannot identify with any known genus, though it approaches *Surnia*, Dum; *Athene*, Boie; and *Ieraglaux*, Kaup, was obtained by my friend Mr. F. R. Blewitt in the dense forests of the eastern portion of the Central Provinces, on the borders of the Tributary Mehals. At first sight it would certainly be classed as an *Athene*; but the head is much smaller than in any of the *Athene*'s I possess, *viz.*, *brama*, *radiata malabarica*, *cuculoides*, *castaneonota*. The nostrils are not pierced from the front, backwards, at the margin of a swollen cere, but are well inside the margin, and are pierced straight in. The upper surfaces of the toes, too, are not covered with bristles, but thickly feathered, so as to leave no portion of the surface visible except just the margin of the terminal toe scale. The bill is as in *Athene*, but the lower mandible even more strongly notched. There is scarcely any facial disc.

Heteroglaux Blewitti, *Sp. Nov.*

General appearance not unlike that of Athene brama, but size larger and wings shorter. Whole head, back, and sides of neck, interscapular region, and scapulars, unspotted dark earth brown; a very strongly marked, dark brown, transverse throat bar.

Mr. Blewitt tells me that he has been for long vainly endeavouring to procure a specimen of this owl, which frequents the densest forests of the western portion of the Tributary Mehals, and is shy to a degree. At last on the 14th December, 1872, he shot a fine female at Busnah, in the Phooljan State. Most of my Indian readers know how long, and zealously, Mr. Blewitt has devoted himself to ornithology, and how eminently successful he has been as an oologist, and will not therefore wonder at my dedicating to him this new and remarkable species, which he has hitherto been the only person to obtain, as also the first to discriminate.

The following are the dimensions and description of a female of this new species, the generic characters of which are alone, I think, sufficient to distinguish it from all other known owls.

Length, 9·5; expanse, 22·5; wing, 5·8; tarsus, 0·91; mid-toe, to root of claw, 0·9; 4th, or longest primary, exceeds 1st secondary by 1·2; bill, straight from nostril to point, 0·55; tail from vent, 2·9; wings, when closed, reach to within 0·5 of end of tail; foot, length, 2·1; breadth, 2·3; weight, 8·5 ozs.

The lores, a line over the eye, a broad line under the eye, and a triangular patch immediately behind the eye, white; the bristles of the lores, with the terminal halves, black; the longest bristles reach just to the tip of the bill. From the gape, runs a stripe backwards, enveloping the whole of the ear coverts, in colour a rather dark earth brown, obsoletely barred with albescent; chin and throat, and the sides of the lower mandible, below the stripe above mentioned, pure white; across this from the base of the lower mandible, on one side to the base on the other, runs a conspicuous, transverse, dark brown band. Forehead, top, and back of the head, back, and sides of the neck, scapulars, and interscapular region an uniform, rather dark earth brown; on lifting the feathers of the back of the neck, and on lifting similarly the scapulars, each feather is found to have a white bar about mid-way between base and tip, or in some cases nearer the tip, but these are not visible when the feathers are in repose. The wings are hair brown, darkest on the primaries, secondaries, and their greater coverts, and more nearly concolorous with the

scapulars, on the lesser and median coverts, and tertiaries. All the quills have four or five conspicuous white spots on the outer webs, and corresponding imperfect bars (not quite reaching to the shafts) on the inner webs, which bars are pale brown towards the tips, and higher up, pure white. The winglet which is almost blackish brown is similarly marked. The primary greater coverts similar, the rest of the greater, and some of the median, coverts, with very large conspicuous white spots near the tips on the outer webs. The lesser coverts, and most of the median unspotted; rump and upper tail coverts, uniform brown, rather darker than the interscapular region, some of them exhibiting, when lifted, a concealed white bar as in the scapulars. Tail hair brown, tipped white, and with three conspicuous transverse white bars, a fourth, a less perfect one, concealed by the upper tail coverts. The breast feathers are mostly white, but are broadly tipped with hair brown, which owing to the overlapping of the feathers is what is chiefly seen. The sides of the breast of this same color, but with traces of white bands well inside the tips, and not noticeable till the feathers are lifted. Centre of abdomen, tibial, and tarsal plumes, toe feathers, and lower tail coverts pure white; sides of abdomen, sides, and flanks, broadly banded with hair brown.

Athene pulchra, *Sp. Nov.*

Closely allied to A. brama, but much smaller, the color of the upper surface usually a darker, and purer brown, and the white markings, smaller.

I have had one specimen of this owl, sent me by Captain Fielden, by me now for some time, but having only a single specimen, I hesitated to characterize the Pegu owl as distinct. I have now four good specimens before me, two of them sent by Mr. Oates, and it appears to me certain that they must be separated. I do not suppose that these birds weigh much more than half what our Indian ones do. In length they vary from 7.25 to 7.8 against 8 to 9.5 in *brama*, while the wings vary from 5.3 to 5.8 against 6 to 6.65; and an expanse of 19 to 19.5 against 21 to 22.5 in the Indian bird. No doubt the general character of the plumage is the same as in *brama*; but the spotting of the head is smaller and neater. The general color of the upper surface is a darker and purer brown; the dark throat band is more strongly marked. The tail exhibits five, or six, narrow transverse bands, or traces of these, against four or five, far broader, and more distinctly marked bands in *brama*.

The scapulars, too, seem to be generally less barred, and more spotted than is usually the case in Indian specimens.

Generally, the birds have a very different appearance, and I think would be separated by any one who examined a series of both; but no mere description will sufficiently explain this difference, and the very marked difference in size is the character that must be first relied on for separating the species.

Captain Fielden remarked that this owl which he identified with *brama* was very common at Thayetmyo.

Mr. Oates who likewise considered the bird to be *brama*, remarks, that it is "very common along the banks of the Irrawaddy, for ten or twenty miles inland. Further inland, every little owlet which pops out in the evening is sure to be *cuculoides*, which I fancy replaces it altogether towards the Pegu Hills. Burmese specimens are much darker above than one which I have from Kutch."

Caprimulgus andamanicus, Nov. Sp.

Of the same size and type as atripennis, Jerd., *but much darker; wing coverts, more conspicuously spotted with rich rufous buff; wing spot, very small, and on the inner webs of the first three primaries only. Head with several stripes of black dashes.*

This is the bird that I erroneously noticed as *Caprimulgus atripennis*, Jerd. It belongs to the same group as *macrourus*, and the latter species, that is to say the tarsi are feathered, and in the male the tips of the two exterior tail feathers on either side only are white. It is about the same size as *atripennis*, the wing in the male measuring only 7 inches. It is distinguished from both *macrourus* and *atripennis*, with good specimens of which from Malayana and Ceylon, I have compared it, by its darker tint, by the bright rufous tips of the median, and larger wing coverts, by the primary wing spot, which is very small, occurring on the inner webs of only the first three instead of the first four primaries, and by the head presenting a series of more or less parallel stripes of black dashes as in *Kelaarti* and *indicus* instead of a single one, or nearly a single one, as in *atripennis* and *macrourus*.

We only once met with this species, of which we shot a single specimen, a male, on Jolly Boys, an island in Macpherson's Straits, at the south of the South Andaman.

Davison remarks, "I myself never saw this species in the vicinity of Port Blair, though I frequently heard its note

of tok, tok, tok, during the night, but on a small island near Stewart Sound, between north and middle Andaman, I saw a pair of them : they rose off the ground, flew low for a few yards, and then squatted, always placing a bush or stone between them and me. I followed them about for some time, but although I got a couple snap shots, I failed to secure a specimen. At Port Mouat, on the 12th April, one of my men shot a female as she flew off her nest ; the eggs, two in number, were laid at the base of a stone in a slight natural depression among the dead leaves, some distance in the jungle. I did not see, or even hear the note of any *Caprimulgus* on any of the islands of the Nicobar Group."

The eggs are some of the most beautiful goat sucker's eggs I have ever seen, and differ from those of any other Indian species with which I am acquainted. In shape they are very regular ovals. One of them only slightly cylindrical.

The ground color is a delicate pale salmon pink, and they are mottled and streaked, and ornamented with zig-zag and hieroglyphic-like lines of a darker, and somewhat purplish pink. They measure 1.07 and 1.13 in length, and 0.85 in width.

Since the above was written, I have received another male of this species shot near Port Blair, on the 19th May. It agrees in every respect with the type specimen except, that on the inner web of the 4th quill, there is a pale dot, a trace as it were of a wing spot, and that the bright rufous tippings of the median and larger coverts are in this example very little developed.

Chætura indica, *Sp. Nov.*

Similar to gigantea; but with a white, or whitish chin, and with a large conspicuous whitish patch under and in front of each eye.

This is the species referred to by Jerdon as *Acauthylis gigantea* of Tem., or as he should more properly have called it of v. Hass. It is, however certainly, not this bird. Javan and Sumatran specimens, (and the bird was described from Java) want the whitey brown throat, and want the conspicuous white patch on either side of the forehead. Moreover, the back and breast in the Indian bird are paler ; the gloss on the head, wings, sides of rump, and flanks, is blue rather than green, and I am not sure that the Indian bird is not a little larger. Our birds are very constant in their tone of color. I have ten specimens before me now from the Andamans and various parts of Southern

India, and they do not differ in the slightest as I can see. Dr. Selater mentions that specimens from Celebes have a well marked narrow white patch on the front on each side of the nostrils, and in this respect the Celebes bird agrees with ours, except that in our birds the patch is a broad and not narrow one; but in the Celebes birds the whole body above and below is dark brownish black, glossed with purple like the wings.

The following are correct dimensions recorded in the flesh:

Males; length, 9; expanse, 19.5; wing, 8; tail, from vent, 3.6; tarsus, 0.75; bill, from gape, 1.1; weight, nearly 5 ozs.

Females; length, 8.6 to 8.9; expanse, 17.87 to 18.8; wing, 7.7 to 7.8; tail, from vent, 2.7 to 2.9; tarsus, 0.7 to 0.75; bill, from gape, 1.05 to 1.1; weight, 3.8 to 4.5 ozs.

The legs and feet are pale pink, or dull purplish pink, or livid with a blue tinge. The bill is black; irides, dark brown.

In the perfect adult, there is, immediately in front of the eye, a velvet-black unglossed spot; between the spot and the nostril is a broad patch of white, duller and slightly tinged brownish in younger specimens. The whole chin is white or brownish white, below which the middle of the throat is mottled with whity brown, the tips only of the feathers being of the same color as the breast. The forehead, above the white patches, the whole of the rest of the top and back of the head, the sides of the neck and nape, the tail, upper tail coverts, sides of the rump and wings, blackish brown, or almost black, highly glossed in adults, the gloss being rather blue than green; the back and scapulars and the middle of the rump quite a pale brown, much paler than in the Javan specimens. Breast, abdomen, sides of body, axillaries, wing lining, tibial plumes, dull smoky brown, not nearly so pale as on the back. Feathers below the vent, the whole of the lower tail coverts, and a stripe from above the origin of the tibia, running down to the tail coverts and dividing the black of the sides of the rump from the brown of the belly, pure white; some of the longer lower tail coverts dark shafted.

This species does not appear to extend to the Nicobars, but occurs plentifully about the Andamans from the beginning of January at any rate to the end of April. Whether they remain there all the year round, or whether they are some of the birds that occur in such vast numbers from July to October, in Southern India, I cannot say.

This is what Mr. Davison says of the occurrence of this species in the Andamans:

“Common in some localities at the Andamans. During the day they keep high up in the air far out of shot, in fact so high,

that often it is impossible to see them in the glare of noontide, and their presence can only be detected by their sharp, clear note which they frequently utter while on the wing; but towards sunset they may be found hawking in company with *H. rustica*, and *C. linchi* over the surface of ponds, or tanks. I have seen them at the Andamans from December to May. I did not notice them at the Nicobars, and do not think they occur there."

Mr. H. R. P. Carter to whom I have owed many specimens from Southern India, remarks:

"The first of these splendid swifts I saw was on 3rd July, 1865, within 4 miles of Coimbatore, at the Railway Station. On 20th July, 1866, I saw a large flock 6 miles west of Coimbatore, and on 16th July, 1867, I saw two or three at the Coimbatore Railway Station. On the 18th July, I saw hundreds hawking about the tanks at Coimbatore, and on 19th, I killed three; there were then large flocks with some alpine swifts. On the 20th at the same place: there were only a few visible. On the 6th August, I saw some at 4,000 feet above sea level on the Anamully Hills. On 26th, of the same month, I saw an immense flock at 6,000 feet above sea level. On 31st, I saw one or two at Polachy, 26 miles from Coimbatore. On the 2nd of September, I saw one or two at Coimbatore Railway Station. Their coming seems to depend on the S. W. Monsoon which just touches Coimbatore, (where little or no rain falls, being retained by the hills west of it.) I have seen these swifts at Salem, 100 miles east of Coimbatore. I have never seen them in any other months than those above mentioned, although constantly on the look-out for them. Their note is a squeal, seldom uttered, but of the usual swift-like tone.

"I should think twelve or fifteen days in the year is the greatest total amount of time they spend in the low country and then not continuously. They fly in large flocks, generally, and in five minutes after hundreds have been seen, not one remains in sight. I found in the stomachs principally the elytra of beetles, some entire, so that I could identify them, one of the *bostrachidæ* (a borer), some of the family *cassidæ*, species, *aspidomorphæ crucis*, some of the *cimex* tribe (green bugs,) sand wasps, entire, and grasshoppers.

"I remarked that the swifts were infested with a parasite so like the common house bug in appearance and smell, that it was not until after examining them carefully, I was satisfied that they were not the house bug but decidedly a *cimex*."

On another occasion he wrote:

"On the morning of 5th October, 1868, we had a slight drizzle. About half past 6 A. M., (I was about three miles S. W.

of Coimbatore.) I saw one or two spine tails passing over, and by 7-15, flocks commenced to pass from S. E. to N. W., probably a point or two South of S. E. This would give a line passing from the sea over the Anamully Hills (6,000 to 8,000 feet high) crossing the gap formed by the Palghaut Valley and going straight for the Neilgherry Hills. I have often noted these swifts taking exactly this course, for except in June and July they never "hawk" nor remain about Coimbatore.

"I was badly prepared, having only a few re-loaded cartridges of No. 8 shot to kill quail. I should not like to say how many I missed, but some idea of their rate of speed may be formed when I say that in seeing one coming towards me and turning sharp round, by the time I sighted, it was too far. This happened several times. The two I got I killed passing over me, making great allowance, and firing far in front; one, although quite dead when I came up to it, had managed to clutch a stone which remained tight in its claws. I once shot one which whilst falling through a tree caught a branch, and I had to send a man up the tree. The spine tails came in flocks of some hundreds about every five minutes for half an hour, then a flock of Alpine swifts came, they seemed to fly like owls after the arrow-like speed of the spine tails.

"From what I could judge, the Spine tails were scattered over some two miles in width during their flight, and did not stop to hawk, but all flew in the same direction, some high, some low."

***Carcineutes amabilis*, Sp. Nov.**

Similar to C. pulchellus, but the males entirely want the rufous collar on the nape, and the females have the upper surface ochraceous, comparatively narrowly banded with black.

The birds sent me by Mr. Oates, from the eastern Pegu Hills in the latitude of Thayetmyo as *C. pulchellus*, appear to me to be a new and distinct species. They are much the same size as *pulchellus*, but the male differs conspicuously in entirely wanting the red collar on the nape, and the female differs still more conspicuously, in that, instead of being black, banded with ochraceous, and very narrowly so on the head, as Malaccan birds are, it is really ochraceous, comparatively narrowly banded with black. Placing the female of the Pegu bird against females from Malacca and Singapore, the difference is very conspicuous. The absence of the red collar in the male is not an accident due to bad

skinning; the whole of the feathers may be raised from the occiput to the interscapular region, without meeting with one red feather. It is common enough to meet with specimens from Malacca which being skinned, and dried in much the same position that Mr. Sharpe has figured the species, show no apparent red collar, but on lifting the feathers, it is always apparent enough, but in these Pegu birds it is absolutely wanting. Temminck's figure pl. col. 277, shews the broad red collar as it really is, and Horsfield's original description (Trans. Lin. XIII., p. 175,) equally clearly shews that this rufous collar is a characteristic of the true *pulchella* "*capite fusco badio, vertice azureo*," only the vertex being blue. This absence of the red collar which is constant in every specimen of *pulchella* that I have seen, and the conspicuous difference in the plumage of the female which is unlike that of any female *pulchella* I have met with, lead me to consider that the Pegu birds may be properly separated.

Mr. Oates gives the following particulars :

"I found and shot a pair of these birds in the evergreen forests; the latitude of Thayetmyo must certainly be its extreme northern limit. The dimensions of the fresh birds were as follows :

"*Female*; length, 9.1; expanse, 12.5; tail, from vent, 3; $T=76.20$ mm wing, 3.5; bill, from gape, 2.05; tarsus, 0.62.

"*Male*; length, 9.1; expanse, 12.2; tail, from vent, 3.3; $T=83.82$ mm wing, 3.3; bill, from gape, 1.98; tarsus, 0.61.

"The bill bright red; inside of mouth somewhat paler red; eyelids and orbital region, pale salmon red; iris, yellowish white; legs, greenish brown; claws, horny.

"These birds were shot on the 28th April, and dissection showed that they would soon have bred."

Myiophoneus Eugenei, *Sp. Nov.*

Similar to Temminckii, but bill larger and deeper, nearly entirely yellow, and no white spots at the tips of any of the coverts in either sex at any age.

Mr. Eugene Oates and myself purport at an early date to present as exhaustive a paper as possible on the birds of Thayetmyo and Upper Pegu generally, founded on his collection, on Capt. Fielden's collection, on some birds obtained for me by a friend at Thayetmyo, and on notes recorded by Capt. Fielden and Mr. Oates. In examining the numerous specimens thus placed

at my disposal, together with specimens from Arracan and other parts of Burmah, (each natural sub-division of which will form the subject of a separate paper, as I can find time to bring them out,) it at once struck me that while the Arracan and Himalayan birds are very similar, those from Thayetmyo and the western Pegu Hills are clearly distinct.

No elaborate description appears necessary, because except in regard to one point the *plumage* of both birds is precisely similar. This difference consist in the entire absence of any white spots at the tips of the median coverts of the wing, which white tipplings characterize every adult specimen (they are wanting in the young), of *Temminckii*; besides this, the bill in our present species is very much larger than in *Temminckii*, it is not only longer, but broader and deeper: from gape it measures 1.63 to 1.7, while in *Temminckii*, it varies from 1.4 to 1.5.

The largest billed *Temminckii* out of an enormous series that I possess, does not approach in size the smallest bill of the present species, of course comparing adults. Moreover, in the color of the bill there is a marked difference, in *Temminckii*, the lower mandible is wax yellow, but nearly the whole of the upper mandible, except its margins, is blackish brown; in the present species the bill is orange yellow, and only the region of the nostrils and a line along the anterior half of the culmen is a moderately dark brown. On the whole the bird is perhaps bluer and brighter than any specimen of *Temminckii*.

I may here note that the Arracan birds, though they have the bills coloured as in *Temminckii*, have them somewhat larger than in this species, and also have the white spots on the coverts almost reduced to specks.

Almost all the other known species of this genus *cyaneus*, Horsf., *Horsfieldii*, Vigors, *insularis*, Gould, and *cæruleus*, Scop., have the bills black; *flavirostris*, Horst., is the only other species which I know that has the entire bill yellow, except a line along the culmen. This latter is a smaller bird, and it wants alike on breast, central abdomen, and back, the broad glistening tipplings to the feathers, which characterize the present species and *Temminckii* and the narrow glistening margins to the feathers of these parts in *flavirostris* are quite a different color to those of the broad tipplings of the present species, and *Temminckii*.

I should add that *Myiophonus Temminckii*, also appears to occur somewhere in the neighbourhood of Thayetmyo, as I saw a specimen in Capt. Fielden's collection which appeared to be identical with Himalayan birds, and which was supposed to have been obtained at or near Thayetmyo.

Hydrornis Oatesi, Sp. Nov.

Similar to Hydrornis nipalensis, Hodgson, but entirely wanting the rich greenish blue occipital and nuchal patch of the male, and the dull bluish green nuchal patch of the female of that species.

In sending me for examination his collection of birds from Upper Pegu, Mr. Oates remarked : " There is a *Hydrornis* which I am sure is new, at any rate, it is not included in Elliot's monograph." In this Mr. Oates is quite correct, and as to him belongs the credit both of first procuring, and discriminating it, it is only fitting that it should bear his name.

The present species is precisely like *nipalensis*, except that in both sexes the whole front top and back of the head, and back of the neck are a rich, somewhat brownish rufous, the occipital and nuchal blue patch of the male, and the nuchal green patch of the female of *nipalensis* being entirely wanting, which I need hardly say is never the case in adult *nipalensis*. All the specimens, three males and two females, all manifestly adults, and all procured in the Eastern Pegu Hills, are precisely similar ; the sexes only differing in the scarcely perceptibly brighter color of the back and rump in the male.

I have compared these birds with a large series of twenty odd adults from Sikim, also with a bird from Arracan, which is precisely similar to the Nepalese birds, and also with the young of *nipalensis*. The quite young bird of this latter species is, of course, a totally different, conspicuously mottled, bird, but birds nearly adult, closely approach the adult, and I find that in these, even before all signs of immaturity have disappeared, the nuchal patch is clear and distinct.

Except the absence of these patches which of course is very conspicuous, I can find absolutely no other difference between the two species, either in size or plumage ; *inter se*, the specimens of both vary somewhat in length of bill, and tarsi, and in depth of bill, but there is no constant difference between the two as a body. The dimensions of the present species recorded in the flesh by Mr. Oates are as follows :

Length, 9·6 to 10 ; expanse, 15·25 to 15·75 ; tail, from vent, 2·5 to 2·9 ; wing, 4·6 to nearly 5 ; bill, from gape, 1·3 to 1·41 ; from anterior margin of nostril to point, 0·7 to 0·78 ; tarsus, 2 to 2·2. He remarks further :

" The upper mandible is brown, its tip and margins, gape and lower surface of lower mandible, pale salmon fleshy, the rest of lower mandible, brown ; the inside of mouth, flesh-color ; iris,

rich brown ; eyelids, plumbeous, tinged yellow ; legs and claws, pale salmon fleshy.

“Common in the evergreen forests, very quiet and trustful ; it comes hopping about the slopes of the ravines near one’s camp. It has a call consisting of a double whistle which I used to hear as it came to drink in the evening. I heard the call frequently at night, and I suspect it is partly a nocturnal feeder. Contents of stomach entirely insects. This bird affects only the gloomiest ravines, where even at mid-day the sun seldom penetrates. It has for its size, the largest, and softest eye I have ever seen in a bird.”

Criniger griseiceps, Sp. Nov.

Allied to flaveolus, gularis, and phaioccephalus, but with top and sides of head pale brownish grey ; chin throat, and more or less of upper breast, pure white.

This a typical *Criniger*, with the head well crested as in *flaveolus*, the fifth quill the longest, the fourth and sixth subequal ; the beak short and deep, exactly as in *flaveolus*, and rictal bristles, strong.

I can scarcely believe that so very distinct a species can have hitherto escaped notice, and as I only know the three species mentioned in the diagnosis, and *ictericus*, it may seem premature to give it a new name, but on the other hand the four species that I do know, are, the only ones, to the best of my belief, that have hitherto been recorded from within our limits, and this is a very typical species, which can *only* be assigned to *Criniger*, so that I have the less hesitation in characterizing it. Several specimens of this species have been sent me by Mr. Oates, (labelled *flaveolus*, which of course they are not), for the preparation of our forthcoming joint paper on the birds of Upper Pegu.

He remarks “this species occurs in the evergreen forests in large numbers ; it has a tendency to be gregarious : has a loud persistent and very harsh note ; in voice and habits, it is very similar to *Ixos Blanfordi*. In April the birds were breeding though I failed to find any nest. They gathered together angrily in the trees over my head from time to time, chattering vociferously as if they wanted to drive me away. The sexes do not differ in size. I measured several. The following is a resumé of the dimensions :

“Length, 8·5 to 8·8; expanse, 11·7 to 12·75; tail, from vent, 3·8 to 4·05, wing, 3·85 to 3·95; bill, from gape, 0·97 to 1·03; tarsus, 0·8 to 0·88.

“The bill is bluish, darker on the anterior half of the culmen and at tip; eyelids plumbeous; irides reddish brown; inside of mouth bluish fleshy; feet, pinkish brown, claws pale horny.”

I add a full description.

The lores, cheeks, and ear coverts are white, with a faint greyish brown tinge; forehead, top, and back of the head, pale greyish brown; the occipital feathers lengthened, and forming a pretty full, moderately-pointed crest, as in *Criniger flaveolus*. Back, scapulars, rump, and lesser wing coverts, dull olive green, with a yellow tinge, but much duller and less yellow than in *flaveolus*. Upper tail coverts similar, but with a slight rufescent tinge, tail feathers pale rufous brown, obsoletely barred darker, and margined on the exterior webs, with the same color as the upper tail coverts.

Greater and median coverts, pale, slightly rufous, brown, margined and tinged, more or less, with dull olive green; quills pale hair brown, the outer webs suffused with a slightly rufescent olive, very faint on the first two primaries, strongly marked on the secondaries. The tertiaries are almost wholly of this rufescent olive color; chin and whole throat pure white; upper breast chiefly white, but tinged here and there greyish, and intermingled with feathers of the same color as the lower breast and abdomen. These latter are a dull, pale, somewhat ochraceous, yellow, more or less tinged on the flanks with dusky olive; vent and lower tail coverts, similar, but with a strong ochraceous tint. Wing lining like the abdomen, but generally duller and with a more or less rufescent tinge. Sides of the neck, pale grey. Inner margins of quills, on lower surface of wing, tinged on their basal portions, (extending in the secondaries nearly to the tips) with very pale salmon colour.

Stachyris rufifrons, Nov. Sp.

Closely allied to S. ruficeps, but smaller; wing, 1·9; bill at front, 0·5; tarsus, 0·67. The rufous of the head duller, and not extending to the occiput. Upper surface wanting the strong greenish olive tinge, and the lower surface, wanting the oil yellow tinge of ruficeps

Amongst the birds sent me from the Pegu Hills by Mr. Oates for the preparation of the paper already referred to, was a small,

and typical *Stachyris* marked *ruficeps*. It is, however, a very different bird from *ruficeps* of which I have a fine series from different parts of the Himalayas, and I therefore name it as above.

The following are the dimensions :

Length, 4·5 ; expanse, 6 ; tail, from vent, 1·95 ; wing, 1·9 ; bill, from gape, 0·56 ; tarsus, 0·67.

The bill is blue ; the inside of the mouth flesh color ; irides deep red ; eyelids plumbeous ; legs, fleshy brown ; claws pale horny.

Lores and a streak over, but not extending beyond, the eye pale mouse brown. Forehead and anterior half of crown, pale brownish rufous ; occiput, nape, and the rest of the upper surface pale brown, with a very faint olivaceous tinge on the occiput, back, and rump. Upper tail coverts, just perceptibly more rufous ; inner webs of primaries, pale hair brown ; outer webs and tail, very pale brown with a scarcely perceptible olivaceous tinge. Chin and centre of throat white, the feathers just perceptibly dark shafted ; the rest of the throat, cheeks, ear coverts, and the rest of the lower surface, dull, pale, slightly fulvous brown ; if raised, it will be seen that only the terminal one-third of the feathers are of this color, above this they are albescent and the basal portions are dusky. The wing lining and axillaries are very pale grey, or greyish white.

This bird is quite a typical *Stachyris*, and though answering well, so far as mere description goes, to Jerdon's description of *ruficeps* is, when compared with that bird, altogether different in appearance.

Mr. Oates remarks, " I met with only one specimen in brush-wood in a nullah, on the dry western slopes of the Pegu Hills."

Calornis Tytleri. *Sp. Nov.*

Long ago my late friend Col. Tytler, to whose memory I have dedicated this species, gave me a note in regard to the Andaman *Calornis* to the following effect :

" During my stay at the Andamans, I obtained a specimen of *Calornis* which I then considered to be *C. affinis*, the same as the Burma bird, and I even wrote to Calcutta saying this, and sending the adult bird I had procured. Since this, thinking over and trying to remember all I could about this Andaman bird, I felt assured that it belonged to a different species. From what I could recollect it was darker, and the bill also was considerably

smaller. I have unfortunately only young specimens of the Andaman bird in my museum, and I cannot therefore institute a proper comparison between it and the Burma race, of which I have only an adult; but I am confident that they will prove distinct."

Having now obtained sixty specimens of the Andaman and Nicobar bird, from almost every island in both groups, it is perfectly clear, that this species is equally distinct from the Sumatran, Malaccan, and Bornean birds on the one hand, and those from Hill Tipperah, Dacca, and Assam on the other.

The present species is altogether a darker and more sombre bird than either of these: it has not the bright green reflections that good fresh specimens of these have; it is a great deal larger than *insidiator*, and also, though in a less degree, larger than the Tipperah bird.

The following are the dimensions of the present species, the abstract of numerous measurements in the flesh of adult birds of both sexes:

Length, 8.25 to 9; expanse, 13.5 to 14.5; wing, 4.2 to 4.75; tail, from vent, 2.89 to 3.25; tarsus, 0.75 to 0.9; bill from gape, 1 to 1.12.

The legs, feet, and bill are black. The irides vary in the most remarkable manner, and this, too, amongst, apparently, perfect adults in full plumage; they are white, opalescent white, fleshy white, pale pink, brown, deep brown, deep red brown, and deep orange.

From the nostrils to the eyes, a velvet black stripe; the whole of the rest of the plumage, except the quills and rectrices, black brown, every where with a rich dark metallic green gloss, which absolutely wants the quasi-purple bronze reflection which is intermingled with the brighter metallic green gloss of *insidiator* and the Tipperah birds; the wings and tail are dark blackish hair-brown, the inner margins of the inner webs of the quills somewhat paler, and with a comparatively faint greenish gloss on the outer margins, almost entirely wanting in many specimens on the primaries.

There is no possible mistake as to the absolute distinctness of this species; but what I do not know is what bird *affinis*, Hay, represents; was it described from Malaccan specimens? Gray, I see, gives it only from Malacca, if so, apparently it is a synonym of *insidiator*, for Malaccan and Sumatran specimens are absolutely identical; in that case, the Tipperah and Assam birds require to be re-named, and I would call them *Irwini* after my late lamented friend Mr. Valentine Irwin, who first sent me numerous specimens from Commillah and its neighbourhood.

This latter is a much larger bird than *insidiator*, with a wing

varying from 4·1 to 4·25, with the neck hackles much longer, and more developed, of the same, bright green metallic gloss that characterizes *insidiator*, but with even more of the purple bronzy reflections in certain lights.

To return to the young of *Tytleri*. This in its youngest stage is a dark umber brown above, and the whole under surface striated dark brown and yellowish white; there is only a faint greenish gloss on the secondaries, tertiaries, and wing coverts, and the former are narrowly margined, and the larger of the latter are narrowly tipped with brown. The wing lining and axillaries are greyish brown margined with yellowish white; in the adults these are sooty black. At a later stage the upper surface, chin, and throat are much as in the adult but duller; the breast feathers as in the adult, but narrowly margined with yellowish white; the abdomen, flanks, and lower tail coverts yellowish white, each feather with a narrow central dusky stripe, broadest on the flanks and upper abdomen, almost wanting towards the vent, and excessively narrow on the lower tail coverts.

Dicæum virescens, *Sp. Nov.*

Sexes alike. Very similar to the female of *D. cruentatum*, but with rump and upper tail coverts olive green, and generally greener everywhere than that bird.

" We observed this very typical *Dicæum* at the Andamans, but failed to procure a specimen, subsequently however in June and July, two specimens of each sex were shot in the neighbourhood of Port Blair, and sent to us. It appears to me to be new. It belongs to the same sub-group as *concolor*, Jerdon, and *minimum*, Tickell, characterized by the more sombre plumage and by the absence of the bright red, yellow, or orange, which distinguishes almost all the other species of this genus.

There is no doubt one species *celebicum*, Müll, of which I know nothing, and of which I can find no description; but as this is peculiar to the Celebes, it is not likely to be our bird. The present species differs from *minimum*, in its somewhat longer bill, which is very differently colored, in the much greener hue of the upper surface, and in the olive yellow tinge of the rump, upper tail-coverts, and abdomen. It is a considerably smaller bird than *concolor*, is of a purer, and brighter olive green, and differs from that as from *minimum* in the color of the rump, upper tail coverts, &c.

Length, 3·1 to 3·4; tail, from vent, 0·9; wing, 1·75 to 1·85; tarsus, about 0·4; bill at front, about the same.

The entire upper surface is a moderately dark olive green, becoming yellow, and brighter on the upper tail coverts. The tail feathers are black, margined at their bases, with yellowish olive. The wings are dark hair brown, almost black, the feathers narrowly margined on the outer webs with yellowish olive green. The lores and face are pale grey brown, in some whitish, in some tinged with olive; the chin and throat albescent, the breast greyer and duskier; abdomen, vent, and lower tail coverts, dull olive yellow, in some greyish white, only tinged with this color. Axillaries and wing lining and inner margins of quills on their lower surfaces towards base, pure white, in one tinged faintly with yellow. The bill is black or nearly so, at the tips of both mandibles and on the culmen, the basal three-fourths of the lower mandible, and about the basal one-fourth of the upper mandible, apparently pale leaden blue. Although slightly smaller, this bird is very close to *Dicaeum cruentatum*. The bills are identical, and a bright colored specimen of the female of this species, with the crimson of the upper tail coverts re-placed by a dull pale yellowish olive, would on its upper surface be scarcely distinguishable from our present bird.

Mirafra microptera, Sp. Nov.

Resembles mirafra affinis, Jerdon, but has more rufous on the quills, and is altogether smaller; wing, 2·6 to 2·75; bill at front, 0·5 to 0·55.

Dr. Jerden mentions that he found *Mirafra affinis* common at Thayetmyo; but having now received several specimens of the Burmese bush-lark from Capt. Fielden, Mr. Oates, and others, I entertain no doubt, that it is quite distinct from the Southern Indian *affinis*, which though very similar to it in plumage has a wing, 3·2 to 3·3; and a bill, 0·7 at front.

Except as regards size of wing, this species is very close indeed to *affinis*, so close as to render a detailed description unnecessary, but I may note that in the primaries, the rufous of the inner webs is greater in extent than in *affinis*, and that there is no rufous on the outer webs of the primaries.

Notes on the Skylarks of India. By W. E. Brooks, Esq.,
C. E., Dinapore.

MR. HUME's paper on the Skylarks of India (*Stray Feathers*, p. 38), and Messrs. Sharpe and Dresser's article in the *Birds of Europe*, on *Alauda arvensis*, lead me to make a few remarks.

I differ from Mr. Hume as to the number of good species in India, and instead of two, I would recognize five,* viz.:

1. ALAUDA DULCIVOX. Hodgson.
- * *A. triborhyncha*. Hodgson.
- * *A. arvensis*.
2. ALAUDA GUTTATA. Brooks.
3. ALAUDA GULGULA. Franklin.
- A. triborhyncha*. Hodgson.
- A. leiopus vel. orientalis*.
- A. cochion*. Swinhoe.
4. ALAUDA MALABARICA. Scopoli.
5. ALAUDA AUSTRALIS. Brooks, n. sp.
- * *A. gulgula*. Franklin.

Erroneous synonyms are distinguished from true synonyms by an asterisk.

1. ALAUDA DULCIVOX, Hodgson, is the only Indian Skylark, having a general resemblance to the European *Alauda arvensis*, and which has therefore been erroneously† identified with it by Messrs. Hume, Sharpe, and Dresser. By Dr. Jerdon, it is erroneously identified with *Alauda triborhyncha*, Hodgson; which latter, I may observe, is a spurious species, and identical with *Alauda gulgula*, Franklin.

There are several marked points of difference between *Alauda dulcivox* and *A. arvensis*, which should be noted.

1. *Alauda dulcivox* has a longer wing.
2. Much purer white on the abdomen.
3. Much less rufous in general tone of plumage, and particularly so with regard to the rufous edgings of wing coverts.

* According to my present view there must be either two, or *eight* species. Specimens, I am thankful to record have been coming in from all quarters, and the more I examine, the more convinced I am, that although the local races are very numerous, (I already reckon eight), there are only two distinct species, all the races of each of which inosculate and run one into the other, so that, lay down what diagnosis you may, you will always find specimens which may be equally correctly assigned to either of two races.—ED., STRAY FEATHERS.

† It is a painful fact illustrative of the wrong-headed obstinacy of some people, that Messrs. Sharpe, Dresser, and Hume persist in retaining this erroneous opinion—and this too, (it is really *too* bad of them,) after Mr. Brooks has deliberately decided that they are quite wrong! wretched mortals, what will happen to them?—ED., STRAY FEATHERS.

4. A shorter, darker, and stouter bill, and not so pointed as in the European bird.

5. Darker legs and feet.

6. Purer white on outer tail feathers.

7. The cold grey tone of the upper plumage, with strongly contrasting dark central streaks.

8. Being *monticolous* or more properly *alpine* during the summer season, in which respect it is totally opposed to its European representative which avoids mountainous countries, and specially affects low lands.

The identification of this well marked Alpine lark with *A. arvensis* would only be excusable* in the absence of specimens of the latter for comparison.

2. *ALAUDA GUTTATA*,† Brooks, our second Indian Skylark is the species described by me in J. A. S., Vol. XLI., part II., 1873, p. 73. It is closely allied to *A. gulgula*, Franklin, but the differences between it and *A. gulgula* have been already pointed out in the original description. I still believe it to be a good species, and none of the examples of *A. gulgula*, obtained out of Cashmere by me, accord with it.

3. *ALAUDA, GULGULA*, Franklin, our third species, is the common skylark of the N. W. Provinces, and breeds over a tract of country extending from Cawnpore to Almorah. The range within which it breeds is probably more extended, but I speak only of what I have observed myself. Hodgson's drawings and descriptions of *A. triborhyncha* and *A. leiopus* vel. *orientalis*, appeared to me to be identical with *A. gulgula*. The Rev. Dr. Tristram, after comparing examples of *gulgula* which I had sent with the types sent home by Mr. Hodgson, also independently, came to the same conclusion.

I think Mr. Hume may have been wrong in identifying Hodgson's *A. leiopus* with "the lark of the high Himalayan plateau," the dimensions of which agree with those of the Cashmere lark (*A. guttata*) which I found in small numbers at Gulmurg, but very plentiful in the Cashmere valley.

* Unfortunately those hardened sinners Messrs. Sharpe, Dresser, and Hume have not even this excuse. The fact is that the larger the series of European and Asiatic larks that are compared, the more certain it becomes that not one of the distinctions insisted upon by Mr. Brooks hold *constantly* good.—ED., STRAY FEATHERS.

† This is the race which I have figured in Lahore to Yarkand (pl. XXVIII.) as *A. triborhyncha*; I do not now believe in the specific separability of these various races.—ED., STRAY FEATHERS.

4. *ALAUDA MALABARICA** is our fourth lark, and is the Western Indian species. It can at any time be readily distinguished by its long pointed crest (resembling that of *Galerida cristata*), and by its generally rufous tone of plumage.

5. *ALAUDA AUSTRALIS*, n. sp, is the skylark of the hill region of Southern India, distinct from *A. malabarica* by the absence of the pointed crest. It is founded upon a single specimen in the Indian Museum, labelled "*Alauda gulgula*, Franklin, male, Ootacamund. W. T. B., donor." On the back of this label I wrote in pencil. "This bird is distinct from *A. gulgula* of the N. W. P. and Bengal, 18th December, 1872."

Description. Length of skin, 6·5; wing, 3·84; tail, 2·4; bill, at front, ·5; from gape, ·77; tarsus 1·03; hind toe and claw, 1·17; claw only, ·65.

This is a large rufous lark, far more rufous both above and below than *A. gulgula* of the N. W. Provinces, and very strongly rufous on the outer edges of the secondaries; greater wing coverts marked with rufous, and having outer pale edges, the lesser wing coverts are also strongly marked with rufous with extreme outer edges of grey, the first or basal portion of the feather being dark brown; upper surface, warm rufous, streaked with a very dark rich brown; part of upper surface of central tail feathers and upper tail coverts, very ruddy, greater portion of outer tail feathers, white; having an internal edge of brown (on inner web); penultimate feathers, fulvous white on outer web, with a narrow dark streak next the shaft; except the apical portion, the shafts of both these feathers are white; central feathers, broadly edged with rufous; lower surface of body fulvous or warm toned; breast, rather sparingly streaked, but very boldly so, with dark brown; abdomen and rest of lower parts, plain fulvous; cheeks and ear coverts, rather rufous, and slightly speckled with brown; throat, plain fulvous; lining of wing, pale rufous; bill, horny brown, paler towards edges; and lower mandible, pale reddish brown, except the tip which is dark.

The absence of the pointed crest readily distinguishes this species from *A. malabarica*; and its large size and generally very rufous tone, separate it at a glance from *A. gulgula*. The last species, it will be

* If this is Scopoli's, *Alauda malabarica*, then this is nothing but *Spizalauda deva*, Sykes, and must now stand as *Spizalauda malabarica* Scop. If, however, it is the true skylark, which Jerdon, I, and others have wrongly called *malabarica*, Scop., then it is identical with Mr. Brooks' *A. australis*, which is the only skylark of the Nilghiris, and Malabar Coast. Although Jerdon and others used the name under a mistake, still as Scopoli's name goes into another genus, this bird must stand as *Alauda malabarica*, Jerd. nec Scop. *Spizalauda deva*, Sykes, again must not be confounded with *S. similima*, nobis, of Upper and Central India.—ED., STRAY FEATHERS.

remembered, was described from the N. W. Provinces by Franklin.

Skylarks of the same species are all subject to considerable variation as regards size; and they are not easily understood till the characters of each have been learned.*

Additions to the Avifauna of Ceylon.

By W. Vincent Legge, Esq., R. A.

THE following additions to our Avifauna have, with two exceptions, been made within the last 12 months, since the publication of the latest thing out, touching this island—Mr. Holdsworth's Catalogue of Ceylon Birds, Proc. Z. S., 1872—I accordingly propose to enumerate them here with a few remarks on each species. The numbers used are those which each bird would assume if inserted in correct order in Mr. Holdsworth's Catalogue.

4 bis.—*Erythropus vespertinus*, Linn.

An immature male shot on the Esplanade at Trincomalie on the 6th of December last.

Length, 11·2 inches; wing, 9·; iris, deep brown; legs and feet, orange; cere and base of bill, with eyelid and orbital skin, orange; tip of bill, dusky leaden brown.

This little kestrel was evidently an isolated straggler. It was frequenting the large open place called the Esplanade, outside the Fort at Trincomalie, and hovered much in search of its food. It descended to the ground every now and then, and, proceeding a few steps, would give a jump into the air and pounce on some beetle or other coleopterous insect. On examination, its stomach proved to be crammed with nothing but *coleoptera*, but notwithstanding, it was wretchedly thin. It was remarkably tame, allowing of a near approach and close inspection before rising. In looking over Jerdon's description of the immature bird of this species, I see that it differs somewhat from this specimen, in which the lower parts are much paler than he represents them; the thigh coverts and abdomen are very pale rusty white, but the breast has scarcely a trace of this hue in its markings. It is

* Having now a vastly larger series of Indian skylarks than I had when I wrote my paper on them, *vide ante*, p. 39, I am bound to state that my conviction has been greatly strengthened, that we have in India only two separable *species*, the one identical with *arvensis*, (of which I can make out three Indian races) and the other, for which *gulgula*, Franklin, now appears to be, perhaps, the oldest published name (of which I can make out five races.) ED., STRAY FEATHERS.

more than probable that this falcon often visits the northern and North-Eastern shores of the island during the strong N. E. monsoon winds. I saw another individual flying along the cliff of the Fort a few weeks afterwards. I may mention also that in the latter end of October, a pair of peregrine falcons frequented the above high cliff at Fort Frederick known by the name of the "Swaney Rock." They were too wary to be procured.

16 *ter.*—**Poliornis teesa**, *Frankl.*

An immature male, shot 2 or 3 miles west of Galle, on the 14th October, 1871. This buzzard, which came into my possession in the flesh, had frequented the neighbourhood of a bungalow on the sea coast for several days, and the gentleman, who shot it, was of opinion that it entertained sinister designs towards some pet chickens of his, but it did not put them into execution, as far as could be ascertained, and therefore it must be said of the ill-starred stranger, that he erred more in thought than in deed! High north-west winds had prevailed for some days before this bird made its appearance, such as bring in our annual visitation of *Rullina ceylonica* and increase the first draft of pintails, (which arrive about the middle of September,) to sportsman-like proportions. It is highly probable that during the prevalence of these winds, as well as during the burst of the N. E. monsoon on the north coast, many raptors are driven into the island, from South India, which continue to escape observation until picked up, now and then, by accident as this bird was.

Length, $18\frac{1}{4}$ inches; wing, $13\frac{1}{2}$ inches.

70 *bis.*—**Gecinus striolatus**,* *Blyth.*

A male shot near Pusselana, in the Central Province, at an elevation of about 3,500 feet, in June 1872. This specimen was purchased from a chemist and bird-stuffer in Kandy, who devotes much of his time to collecting objects of Natural History. Unfortunately, it was purchased by him from the person who shot it, without making inquiries as to exact locality and circumstances under which it was procured, so that I am unable to afford any information on that head. As the district in which it was shot is one that is tolerably well worked by collectors, it is remarkable that this species should not have turned up before. Wing, 5.2; bill, at front, 1.3.

162 *bis.*—**Acrocephalus brunnescens**, *Jerdon.*

A male shot in the reeds of the Fort ditch, Jaffna, on the 13th of January last. On visiting the locality, I was at once

* Identified by Mr. Hume as identical with Indian specimens of the species.

attracted by the harsh notes of this bird, and immediately saw that another addition to our list was about to make its way into my cabinet. There were a pair of them, but I was only able to secure one, as they kept to the thick reed beds and baffled my murderous intentions.

Length, 7·8 ; tail, 3·2 ; wing, 3·4 ; tarsi, 1·2 ; bill, at front, 0·7 ; iris, brownish yellow ; bill, upper mandible, dark horny ; under mandible fleshy, with a dusky tip ; legs and feet, greenish plumbeous.

The several organs were very much developed, leading to the belief that the bird was breeding. The occurrence of the species in the north of Ceylon accords with its migratory habits as regards India in the cold season, but I was much surprised, when at Hawbautota on the S. E. Coast in *July last*, to recognize precisely the same note, proceeding from a bed of reeds on a small tank there, and after a little searching, I shot another male. The circumstance is puzzling, as no species of *Acrocephalus* has been even noticed in Ceylon at that season, and I doubt if in India either. My Hawbautota specimen is smaller than the Jaffna bird, and less olivaceous above ; the bill is stouter, somewhat, and certainly broader at the base as well as 0·08 longer. Total length, 7·65 ; wing, 3·35 ; tail, 3 ; bill, at front, straight, 0·78. Iris, brownish yellow ; bill with the under mandible *reddish* fleshy at the base, and the inside of the mouth fleshy red. The rectal vibrissæ are larger than in the Jaffna bird. Notwithstanding the presence of the red about the mouth and other slight differences above noticed, I doubt not but that both specimens are referable to the same species. The several organs were much enlarged, indicating the possibility of the bird being breeding, but I failed to discover the whereabouts of its mate, though I took considerable pains to find her.

The question has now to be answered : What was this warbler doing in Ceylon at this particular time, and it would be interesting to know whether such an instance has even occurred in India as an *Acrocephalus* being found there out of the cold season.

225 bis.—*Ægialitis Geoffroyi*, Wagler.

This sand-plover was originally included by Layard in his Catalogue of Ceylon Birds (Ann. Nat. Hist. 1854,) whether rightly or wrongly identified, I cannot say, but Mr. Holdsworth in his late paper excludes it, saying, p. 471, Proc. Z. S., 1872. "I had no reason to think the much larger *Æg. Geoffroyi*, Wagler, is found in Ceylon.

During the course of a tour up the N. E. Coast from Trin-

comalie, I saw several of these birds, procuring one, a female, on the 4th of January last.

Length, 9 inches ; wing, 5·7 ; tail, 2·2 ; bill, at front, 1·1 ; iris, brown ; bill, black, yellowish at the base of under mandible ; legs, fleshy reddish grey, the joints bluish, and the feet darkening into plumbeous.

These birds I observed, kept in pairs, or were solitary, while the lesser species, *Æ. mongolicus*, consorts together in flocks. This latter species is numerous in this country, on the S. E. Coast, in the S. W. monsoon, during the months of July and August. *Ægialitis mongolicus*, as well as the subject of the present note and many other waders, I have discovered within the past six months, remain behind in large flocks throughout the year,* after the usual migration of the tribe to Northern latitudes takes place ; whether they† do so as immature and non-breeding birds, or whether they actually breed on the South-East Coast of Ceylon, I know not, as I did not succeed in finding any eggs. Certain it is, that they are numerous in the Hawbantota district in the breeding season, and though the greater part were in immature dress, many were in nuptial plumage as well.

On the 14th July, I came on a good number of *Ægialitis Geoffroyi*, which, contrary to what I observed on the North Coast, were all in a flock, in company with another new bird to Ceylon (*Glareola lactea*) affecting the hollows of the celebrated sand-hills of Hawbantota, which stretch along the beach for three or four miles west of that place, and which after having already, once upon a time, swallowed up the town, are still slowly moving on before the S. W. wind and encroaching to an alarming extent on the present site. A specimen which fell to my gun proved a female, and was smaller than the North country example, having a total length of $8\frac{1}{2}$ inches, and a wing of 5·2, with a bill of 0·97 at front. It was evidently a young bird, still in winter dress, as the ova were but little developed ; the coloring of the front of the tarsi differed from that of the Trincomalie bird, being pale, sickly yellowish ; the tibia, pale slate bluish, mingled with yellowish, and the feet bluish leaden. The day on which I obtained this interesting specimen was the last I spent in the district, and it was shot while actually leaving the neighbourhood, I having pulled up my bullock-cart to procure some terns which were skimming over a small tank beneath the sand-hills, and I therefore had no

* *Æ. Geoffroyi* and *Æ. mongolicus*.

† I have recently ascertained this to be the case at the Andamans also, and have prominently noticed the fact in my forthcoming paper on the Avifauna of the islands of the Bay of Bengal.

opportunity of procuring further examples, and perhaps securing one or two in summer dress.

249 *bis*.—**Tringa Temminckii**, *Leisler*.

A female ; I shot this addition to our list on the 1st of November last, at Tamblegam, near Trincomalie. It was among a small flock of *T. salina*, Pallas, frequenting a muddy stream that flowed through some paddy fields.

Length, 6.1 ; wing, 3.9 ; tarsus, 0.7 ; mid toe, with claw, 0.75 ; bill, at front, 0.67 ; iris, brown ; bill, black, lightish at the base of under mandible ; legs and feet, olive ; joints and toes, bluish.

In my specimen the first primary shaft is white ; the second and third brown, with a slightly paler interval on the terminal half ; the two outer tail feathers are pure white throughout, the third is *faintly sullied* on the external web.

While writing on *Tringa*, it may be as well to supplement Mr. Hume's interesting notes on, and diagnosis of, *T. salina*, Pallas, = *T. subminuta*, Middendorff, and *T. minuta*, *Leisler*, contained at page 242, STRAY FEATHERS, 1872, with my own experience of the two species in Ceylon. Both are found here, but the latter is the most numerous, though perhaps more restricted in its distribution. *T. minuta* is very numerous on the North and North-East as well as on the South-East Coasts, frequenting the edges of salt lakes, estuaries, and the leways* of the latter region, and affecting the foreshores or portions left bare by the tide, while *P. salina* has a partiality for the salt marshes bounding the foreshores, as well as the edges of streams leading into the marshes. I have likewise obtained it in newly-ploughed paddy fields, in the South-West of Ceylon—a district, as a general rule, quite devoid of *Tringa* and all *Totani*, save *T. glareola*—and for this reason I hold its range to be less restricted than that of *P. minuta*.† I did not procure it at Hawbautota last year, while collecting there in March, all specimens of *Tringa*'s which I there shot, proving to be *minuta*, but this must be viewed as mere accident, for it is sure to occur in a district so rich in the tribe as the South-East of Ceylon.

Touching the distinctive characteristics of the two species, I find, that, besides the long middle toe, and the solitary *sullied* white first primary shaft, the dark forehead, and very dark spear-shaped (or pointed) feathers of the interscapular region as well as the

* Lagoons, from which the salt is collected.

† Holdsworth in his Catalogue, Ceylon Birds, says of *minuta* that it is common on the N. W. Coast, and that *Salina* is rare, proving the latter, though of more extended range, to be everywhere less numerous than its congener.

light colored tarsi serve to identify *salina* at once. The bill is, as a general rule, decidedly more compressed than that of *minuta*, but I have not observed that it is longer. I have but two specimens (males) at present to hand, the bills of which measure at front respectively, 0·7 and 0·73 inches. In a winter plumaged example, shot in December, the tarsi are yellowish green with darkish joints and toes; further on in the season they become duskier, being then of a sickly olive green.

With regard to *minuta*, the bills of my specimens vary from 0·69 in a male to 0·78 in a *female*, the latter being a much stouter bird than any of the others with a wing of 3·9 against 3·7, 3·8, and 3·85, and with the forehead and face with more white. Is this *T. albescens* of Temminck?

The legs of *minuta*, as found in Ceylon, are not black. They vary in colour from the obscure dark greenish tarsi with dusky leaden feet and joints of December specimens to the sombre olive green (but never with the yellowish tint of *salina*) of March examples. Birds procured last year in the latter month had already signs of summer garb about them, the tertials and lowermost scapulars being deeply bordered with rufous.

Notes.

I HAVE lately received, from Mr. Mandelli of Darjeeling, three specimens of that remarkable lark *Melanocorypha maxima*, Gould, figured in Part XIX. of the Birds of Asia. They were obtained somewhere on the borders of native Sikim and Thibet. All the specimens sent are young birds.

This species is characterized by its great size, its long and, for a *melanocorypha*, slender and curved bill; by the conspicuous white margin to the first two primaries (narrower on the second), the conspicuous white tips to the secondaries (which Mr. Gould does not mention in his description, though he shews it in his figure,) by its white tipped tail, and external tail feather almost wholly white, by its short and very stout tarsi and toes, and by its perfectly straight hind claw which, in some specimens, exceeds an inch in length.

The following are the dimensions, (taken from the dried skin,) of my three specimens:

Length, 8·5 to 9; wing, 5·8 to 6; bill, from gape, 1·06 to 1·25; bill, at front, 0·87 to 0·97; tail, from vent, 3·2 to 3·7; tarsus, 1·1 to 1·2; hind toe and claw, 1·1 to 1·5; claw only, 0·75 to 1·1.

The second quill is the longest; the third sub-equal, the fourth equal to the second or nearly so.

Mr. Gould's specimen, the only one I believe in existence in Europe, was said to have been obtained in Afghanistan, but there is no certainty as to this point. The following is Mr. Gould's description which I quote, as it correctly enough represents my specimens, and as mine are so indifferently preserved, that I cannot make out exactly the markings of the lores, cheeks, and ear coverts which he describes at length, nor can I clearly make out the dark patches on either side of the neck:

"Head, neck, all the upper surface and wings, dark brown, each feather conspicuously bordered with lighter brown; primaries, dark brown, the outer one margined externally to near the tip with white, the remainder with brownish white; the outer tail feather on each side white, except on the basal portion of the inner web, where it is light brown, the remaining tail feathers dark brown (except the two central which are light brown), margined externally and tipped with white, the extent of which decreases as the feathers approach the centre; stripe over the eye, dull white, continued in a browner tint behind the ear coverts to the sides of the neck, where it unites with the dull fawn-color of the flanks; line from the nostrils to the eye and the ear coverts brown, the feathers of the latter with darker centres; from the angle of the mouth within the brown a small moustache-like streak of greyish white; on each side of the neck, in front of the shoulder, a few dark brown feathers, bordered with sandy buff, show somewhat conspicuously, but not so much so as in *Melanocorypha calandra*; throat and under surface very pale brown or creamy white; bill, bluish flesh colour, passing into pale buff on the basal portion of the lower mandible; legs and feet, light brown, very stout and strong; nails black, that of the hinder toe unusually stout, and straight."

Mr. Hodgson has, I find, figured and described *Pellorneum Mandellii* as *Hemipteron nipalensis*. This latter name was discarded by Mr. Gray, under the idea that the bird was identical with the Southern Indian *P. ruficeps*. The distinctness of the two species is undoubted and the Himalayan bird must stand as *P. nipalensis*, Hodgson, with *P. Mandellii*, Blandford, as a synonyme.

By careful comparison with Mr. Hodgson's drawings, I have ascertained that Mr. Brooks is correct, and that in pl. 20, Lahore to Yarkand, I have transposed the names of *Abroornis albosuper-*

ciliaris and *A. xanthoschistus*, the lower figure with the bluer head and back is the true *xanthoschistus*, the upper figure is *albosuperciliaris*. I would also point out that on pl. 17, I have not figured the true *Drymoipus inornatus* which was described from Southern India and which is altogether a darker and redder bird.

The bird figured as *D. inornatus*, is really my *D. terricolor*.

Mr. Hodgson gives a very careful figure of a female *Dumeticola bruneipectus*, Blyth, but he labels it *A. affinis*. But, as we know, he described *affinis* as having spots on the breast, and he notes that at the same place at which he obtained the female that he figures, he obtained a male with spots on the breast, and it seems clear that he considered the bird he described as *affinis* to be the male, and the bird that Blyth later (*Ibis*, 1867, p. 19) described as *bruneipectus* to be the female of the same species. I cannot, after comparing specimens of each, believe that this view is correct, but it is still well to note that the bird figured by Mr. Hodgson, pl. 826, with nest and eggs; is not, though he labels it so, what he described and published as *affinis* (unless both are different sexes of the same bird) but *bruneipectus* of Blyth.

Hodgson's figure, No. 900, of two birds, a nest and egg, has been identified by Gray as pertaining to *Horornis assimilis* of Hodgson; but it really represents *Neornis flavolivacea*. *Assimilis* is not only a somewhat smaller bird, but is altogether more rufous.

Mr. Blyth and others have identified *Abornis chloronotus* of Hodgson with *Reguloides proregulus* of Pallas, but as a matter of fact *chloronotus* of Hodgson is identical with *maculipennis*, Blyth, described in *Ibis*, 1867, p. 27. Mr. Hodgson gives a most beautiful figure (No. 839) of both sexes of his *chloronotus* with nest and egg, and with the very large series which I possess of both species; no possible doubt can exist that *maculipennis* is merely a synonyme of *chloronotus*, which name must therefore stand.

I have carefully compared two specimens, from Mr. Swinhoe of his *Phyllopneuste sylvicultrix* with *P. magnirostris*, Blyth, from Ceylon and numerous Indian localities. They appear to me to be absolutely identical. If this be so, then, the species will stand (see also Swinhoe Birds of China, P. Z. S., 1871, 357 *et seq.*)

P. magnirostris, Blyth, J. A. S., XII., 966, 1843, with as synonymes, *borealis*, Blasius, 1858; *sylvicultrix*, Swinhoe, 1860; *Eversmanni*, Middendorff, nec Bonap.; *javanica*, Bonap. nec Horsf.; *flavescens*, Gray, 1860; *Kennicotti*, Baird, 1869.

This bird appears to be a wonderful wanderer. We have it during the cold season everywhere from Ceylon to Peshawur on the west, and Debroogurh on the east. We have it from Tenasserim and from the Andamans, the Malayan Peninsula and Archipelago, from Japan and China. On the north it extends from Alaska, in N. America, and the Khurrile islands to Heligoland!

In the *Ibis* for July, 1873, Mr. Harting gives further valuable information as to my *Eudromias* (*Ægialitis*) *tenuirostris*, (*vide ante*, pp. 17 and 417). He tell us that this is certainly *Ægialitis Hartingi*, Swinhoe, P. Z. S., 1870, p. 136. That this is probably *charadrius longipes* of Père David, (Nouv. Archiv. 1867, Bulletin, p. 38) obtained at Pekin. That it is certainly the species referred to by Blyth, *Ibis*, 1867, p. 1867, as follows:

“*ÆGIALITIS HIATICULA* (L), *charadrius placidus*, G. R. Gray, B. M. Cat. Hodgson's Coll. 2nd Ed., p. 70.”

“Two examples of what I consider to be the common British Ringed Plover are among the skins sent by Mr. Hodgson to the British Museum.”

Accepting as I do fully Mr. Harting's verdict, it follows, *firstly*, that this species must now stand as *placidus*, Gray, with *Hartingi*, Swinhoe, and *tenuirostris*, Hume, as synonyms, and *secondly*, that *hiaticula* which was only included on Mr. Blyth's authority in our Indian Avifauna, must now be erased from our list.

A. O. H.

Letters to the Editor.

DEAR SIR,

Some few months ago, I saw a letter in the *Field* newspaper, by “Smoothbore” about the swallows of Southern India, in which he mentions the Wire-tailed swallow as not occurring west of Coimbatore; but on the 2nd February, 1871, I shot 3, and saw several others about 5 miles from Cannanore, and about 200 yards from the Coast. On two occasions I shot the hair-crested Drongo (*Chibia hottentotta*) not many miles from Cannanore, one in March, 1871, and the other 22nd October, 1872. In August, 1872, I saw several broad-billed rollers (*Eurystomus orientalis*) in the Malabar jungles, near the foot of the Carcoor

Ghaut of the Neilgherries. I believe I am about the first who noticed this bird in Southern India.

On the Coonoor Ghaut of the Neilgherries, I have shot the brown necked spinetail, the blue necked bee-eater, and on 17th February, 1872, near Burliah, I shot a painted spur fowl: it is the only time I have ever seen or heard of them being in that part.—J. W. VIPAN.

SIR,

If you consider the occurrence, which I shall very briefly describe, rather extraordinary, as it appears to me, perhaps you may deem this note of sufficient interest to Indian Ornithologists as to merit a spare niche in *Stray Feathers*.

1872, January 22.—While journeying by boat on the river Bháirab, off a place called Naupará, some 16 miles to the South-East of the station of Jessore, in Lower Bengal, I observed a Brahmani kite, (*Haliastur indus*, Bodd.) make a rather leisurely swoop at a fish swimming on the surface of the stream, but when almost within its grasp, a kingfisher, (*Alcedo bengalensis*, Gm.) which had darted down swiftly, carried off the prey. This appeared to have infuriated the kite, and it immediately followed in hot pursuit of the kingfisher, and after a long and stern chase, it eventually succeeded in seizing its unresisting quarry; holding the screeching bird securely in its talons, it bore it to the shore, and after complacently plucking the feathers of its, (then still alive) victim, it set about devouring its quivering flesh with evident satisfaction. On my approaching the spot, soon after the kite had commenced its savage repast, it flew away, leaving little else than a few bare bones of the kingfisher.—H. J. RAINEY.

SIR,

In your July number Capt. Marshall has an article on *Gallinago stenura* which contains some inaccuracies. The above kind is larger and has more richly barred lower wing coverts; the length of bill is no criterion, for it is as long as that of the common snipe in some specimens and shorter in others. Capt. Marshall gives 6 as the number of feathers on each side of the tail—they are 7, one, the outermost, being largest. What I have noticed in this bird is that towards the end of the season, *i. e.*, from the last week in February, the pintailed snipe is very common, two out of every five shot being of this kind. This season I intend making a list of the different kinds shot and will let you know the result.—J. R. CRIPPS. Bhyrub Bazaar. Dacca.

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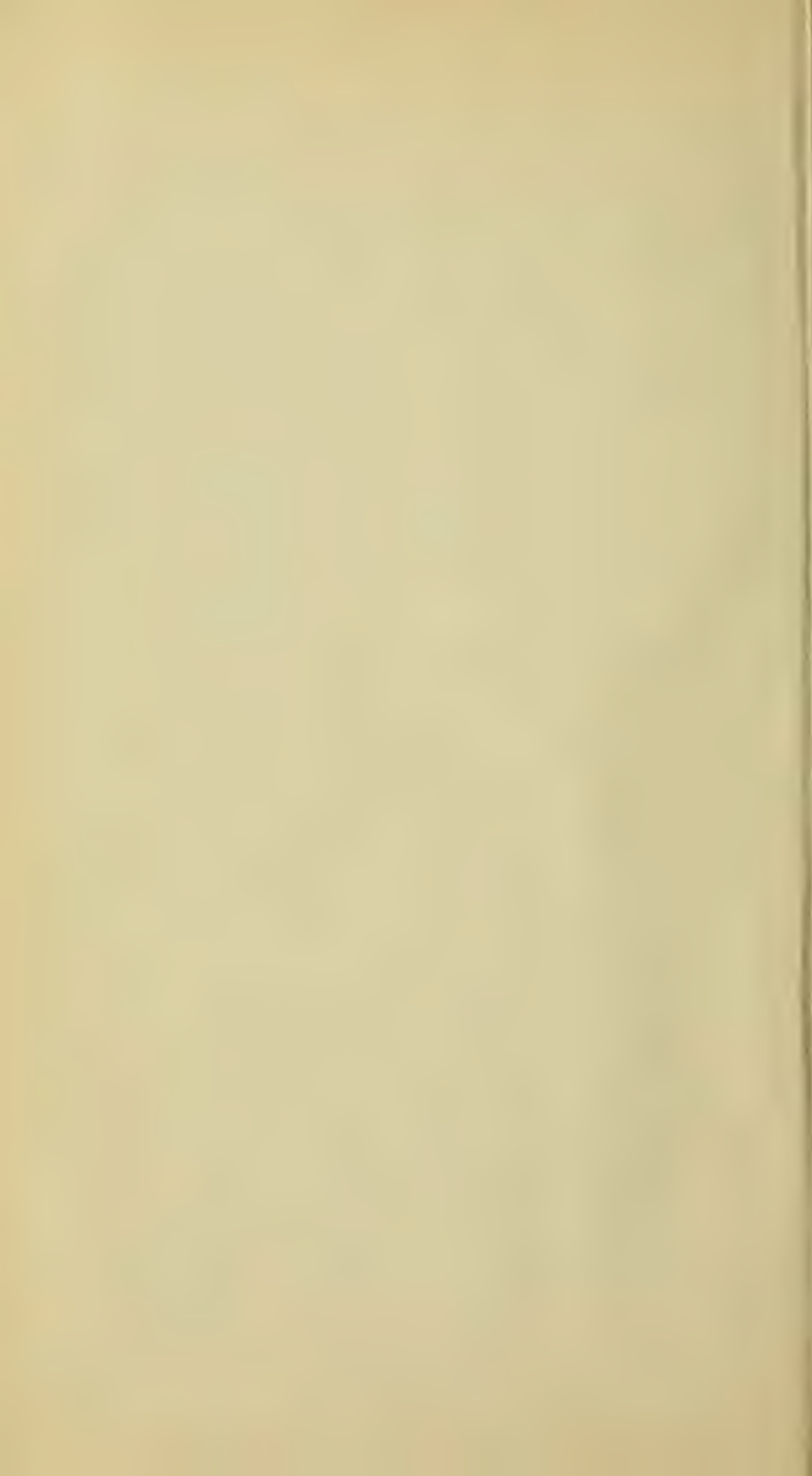
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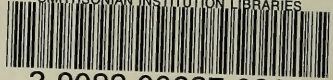
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